

Section 1. Registration Information

Source Identification

Facility Name:	Puget Sound Refinery
Parent Company #1 Name:	Shell Oil Products US
Parent Company #2 Name:	

Submission and Acceptance

Submission Type:	Re-submission
Subsequent RMP Submission Reason:	5-year update (40 CFR 68.190(b)(1))
Description:	
Receipt Date:	22-Apr-2015
Postmark Date:	22-Apr-2015
Next Due Date:	22-Apr-2020
Completeness Check Date:	22-Apr-2015
Complete RMP:	Yes
De-Registration / Closed Reason:	
De-Registration / Closed Reason Other Text:	
De-Registered / Closed Date:	
De-Registered / Closed Effective Date:	
Certification Received:	Yes

Facility Identification

EPA Facility Identifier:	1000 0009 9252
Other EPA Systems Facility ID:	98221pgtsn600st
Facility Registry System ID:	1100 0821 4360

Dun and Bradstreet Numbers (DUNS)

Facility DUNS:	9276197
Parent Company #1 DUNS:	4294737
Parent Company #2 DUNS:	

Facility Location Address

Street 1:	8505 South Texas Road
Street 2:	
City:	Anacortes
State:	WASHINGTON
ZIP:	98221
ZIP4:	0622
County:	SKAGIT

Facility Latitude and Longitude

Latitude (decimal):	48.478917
Longitude (decimal):	-122.570861
Lat/Long Method:	Address Matching - House Number
Lat/Long Description:	SE Corner of Land Parcel
Horizontal Accuracy Measure:	1
Horizontal Reference Datum Name:	North American Datum of 1983
Source Map Scale Number:	



Owner or Operator

Operator Name: Shell Oil Products U.S.
Operator Phone: (360) 293-0800

Mailing Address

Operator Street 1: 8505 South Texas Road
Operator Street 2: P.O. Box 622
Operator City: Anacortes
Operator State: WASHINGTON
Operator ZIP: 98221
Operator ZIP4: 0622
Operator Foreign State or Province:
Operator Foreign ZIP:
Operator Foreign Country:

Name and title of person or position responsible for Part 68 (RMP) Implementation

RMP Name of Person: Shirley Yap
RMP Title of Person or Position: General Manager
RMP E-mail Address:

Emergency Contact

Emergency Contact Name: Joe Solomon
Emergency Contact Title: Emergency Response Coordinator
Emergency Contact Phone: (360) 293-1707
Emergency Contact 24-Hour Phone: (360) 293-0800
Emergency Contact Ext. or PIN:
Emergency Contact E-mail Address: joe.solomon@shell.com

Other Points of Contact

Facility or Parent Company E-mail Address:
Facility Public Contact Phone:
Facility or Parent Company WWW Homepage Address: www.shellpsr.com

Local Emergency Planning Committee

LEPC: Skagit County LEPC

Full Time Equivalent Employees

Number of Full Time Employees (FTE) on Site: 455
FTE Claimed as CBI:

Covered By

OSHA PSM : Yes
EPCRA 302 : Yes
CAA Title V: Yes

Air Operating Permit ID:

014

OSHA Ranking

OSHA Star or Merit Ranking:

Last Safety Inspection

Last Safety Inspection (By an External Agency)
Date:

31-Mar-2015

Last Safety Inspection Performed By an External
Agency:

State occupational safety agency

Predictive Filing

Did this RMP involve predictive filing?:

Preparer Information

Preparer Name:
Preparer Phone:
Preparer Street 1:
Preparer Street 2:
Preparer City:
Preparer State:
Preparer ZIP:
Preparer ZIP4:
Preparer Foreign State:
Preparer Foreign Country:
Preparer Foreign ZIP:

Confidential Business Information (CBI)

CBI Claimed:
Substantiation Provided:
Unsanitized RMP Provided:

Reportable Accidents

Reportable Accidents:

See Section 6. Accident History below to determine
if there were any accidents reported for this RMP.

Process Chemicals

Process ID:	1000062335
Description:	Tankfarm
Process Chemical ID:	1000076762
Program Level:	Program Level 3 process
Chemical Name:	Butane
CAS Number:	106-97-8
Quantity (lbs):	8500000
CBI Claimed:	
Flammable/Toxic:	Flammable

Process ID: 1000062340
Description: Hydrotreating Unit #1
Process Chemical ID: 1000076801
Program Level: Program Level 3 process
Chemical Name: Pentane
CAS Number: 109-66-0
Quantity (lbs): 20000
CBI Claimed:
Flammable/Toxic: Flammable

Process ID: 1000062343
Description: Catalytic Reformer #2
Process Chemical ID: 1000076824
Program Level: Program Level 3 process
Chemical Name: Isobutane [Propane, 2-methyl]
CAS Number: 75-28-5
Quantity (lbs): 26000
CBI Claimed:
Flammable/Toxic: Flammable

Process ID: 1000062344
Description: Alkylation Unit #2
Process Chemical ID: 1000076828
Program Level: Program Level 3 process
Chemical Name: Propane
CAS Number: 74-98-6
Quantity (lbs): 18000
CBI Claimed:
Flammable/Toxic: Flammable

Process ID: 1000062338
Description: Alkylation Unit #1
Process Chemical ID: 1000076916
Program Level: Program Level 3 process
Chemical Name: 2-Butene-cis
CAS Number: 590-18-1
Quantity (lbs): 10000
CBI Claimed:
Flammable/Toxic: Flammable

Process ID: 1000062339
Description: Railcar Loading Rack
Process Chemical ID: 1000076920
Program Level: Program Level 3 process
Chemical Name: Isopentane [Butane, 2-methyl-]
CAS Number: 78-78-4
Quantity (lbs): 48000

CBI Claimed:
Flammable/Toxic: Flammable

Process ID: 1000062345
Description: FCCU / GRU
Process Chemical ID: 1000076924
Program Level: Program Level 3 process
Chemical Name: Isopentane [Butane, 2-methyl-]
CAS Number: 78-78-4
Quantity (lbs): 12000
CBI Claimed:
Flammable/Toxic: Flammable

Process ID: 1000062347
Description: Hydrotreating Unit #3
Process Chemical ID: 1000076926
Program Level: Program Level 3 process
Chemical Name: Isopentane [Butane, 2-methyl-]
CAS Number: 78-78-4
Quantity (lbs): 12000
CBI Claimed:
Flammable/Toxic: Flammable

Process ID: 1000062343
Description: Catalytic Reformer #2
Process Chemical ID: 1000076825
Program Level: Program Level 3 process
Chemical Name: Butane
CAS Number: 106-97-8
Quantity (lbs): 24000
CBI Claimed:
Flammable/Toxic: Flammable

Process ID: 1000062344
Description: Alkylation Unit #2
Process Chemical ID: 1000076834
Program Level: Program Level 3 process
Chemical Name: Isopentane [Butane, 2-methyl-]
CAS Number: 78-78-4
Quantity (lbs): 25000
CBI Claimed:
Flammable/Toxic: Flammable

Process ID: 1000062346
Description: Poly

Process Chemical ID: 1000076850
Program Level: Program Level 3 process
Chemical Name: Butane
CAS Number: 106-97-8
Quantity (lbs): 53000
CBI Claimed:
Flammable/Toxic: Flammable

Process ID: 1000062338
Description: Alkylation Unit #1
Process Chemical ID: 1000076917
Program Level: Program Level 3 process
Chemical Name: 2-Butene-trans- [2-Butene, (E)]
CAS Number: 624-64-6
Quantity (lbs): 13000
CBI Claimed:
Flammable/Toxic: Flammable

Process ID: 1000062339
Description: Railcar Loading Rack
Process Chemical ID: 1000076919
Program Level: Program Level 3 process
Chemical Name: Isobutane [Propane, 2-methyl]
CAS Number: 75-28-5
Quantity (lbs): 2300000
CBI Claimed:
Flammable/Toxic: Flammable

Process ID: 1000062335
Description: Tankfarm
Process Chemical ID: 1000076758
Program Level: Program Level 3 process
Chemical Name: Propane
CAS Number: 74-98-6
Quantity (lbs): 1300000
CBI Claimed:
Flammable/Toxic: Flammable

Process ID: 1000062335
Description: Tankfarm
Process Chemical ID: 1000076759
Program Level: Program Level 3 process
Chemical Name: Isobutane [Propane, 2-methyl]
CAS Number: 75-28-5
Quantity (lbs): 4200000
CBI Claimed:
Flammable/Toxic: Flammable

Process ID: 1000062335
Description: Tankfarm
Process Chemical ID: 1000076763
Program Level: Program Level 3 process
Chemical Name: Isopentane [Butane, 2-methyl-]
CAS Number: 78-78-4
Quantity (lbs): 7600000
CBI Claimed:
Flammable/Toxic: Flammable

Process ID: 1000062338
Description: Alkylation Unit #1
Process Chemical ID: 1000076788
Program Level: Program Level 3 process
Chemical Name: Propane
CAS Number: 74-98-6
Quantity (lbs): 21000
CBI Claimed:
Flammable/Toxic: Flammable

Process ID: 1000062338
Description: Alkylation Unit #1
Process Chemical ID: 1000076791
Program Level: Program Level 3 process
Chemical Name: Isopentane [Butane, 2-methyl-]
CAS Number: 78-78-4
Quantity (lbs): 18000
CBI Claimed:
Flammable/Toxic: Flammable

Process ID: 1000062340
Description: Hydrotreating Unit #1
Process Chemical ID: 1000076799
Program Level: Program Level 3 process
Chemical Name: Butane
CAS Number: 106-97-8
Quantity (lbs): 15000
CBI Claimed:
Flammable/Toxic: Flammable

Process ID: 1000062346
Description: Poly
Process Chemical ID: 1000076848
Program Level: Program Level 3 process
Chemical Name: Propylene [1-Propene]

CAS Number: 115-07-1
Quantity (lbs): 69000
CBI Claimed:
Flammable/Toxic: Flammable

Process ID: 1000062335
Description: Tankfarm
Process Chemical ID: 1000076861
Program Level: Program Level 3 process
Chemical Name: 2-Methylpropene [1-Propene, 2-methyl-]
CAS Number: 115-11-7
Quantity (lbs): 150000
CBI Claimed:
Flammable/Toxic: Flammable

Process ID: 1000062339
Description: Railcar Loading Rack
Process Chemical ID: 1000076793
Program Level: Program Level 3 process
Chemical Name: Butane
CAS Number: 106-97-8
Quantity (lbs): 3900000
CBI Claimed:
Flammable/Toxic: Flammable

Process ID: 1000062341
Description: Hydrotreating Unit #2
Process Chemical ID: 1000076807
Program Level: Program Level 3 process
Chemical Name: Butane
CAS Number: 106-97-8
Quantity (lbs): 35000
CBI Claimed:
Flammable/Toxic: Flammable

Process ID: 1000062341
Description: Hydrotreating Unit #2
Process Chemical ID: 1000076809
Program Level: Program Level 3 process
Chemical Name: Pentane
CAS Number: 109-66-0
Quantity (lbs): 10000
CBI Claimed:
Flammable/Toxic: Flammable

Process ID: 1000062343
Description: Catalytic Reformer #2
Process Chemical ID: 1000076826
Program Level: Program Level 3 process
Chemical Name: Isopentane [Butane, 2-methyl-]
CAS Number: 78-78-4
Quantity (lbs): 11000
CBI Claimed:
Flammable/Toxic: Flammable

Process ID: 1000062345
Description: FCCU / GRU
Process Chemical ID: 1000076841
Program Level: Program Level 3 process
Chemical Name: Isobutane [Propane, 2-methyl]
CAS Number: 75-28-5
Quantity (lbs): 15000
CBI Claimed:
Flammable/Toxic: Flammable

Process ID: 1000062346
Description: Poly
Process Chemical ID: 1000076847
Program Level: Program Level 3 process
Chemical Name: Propane
CAS Number: 74-98-6
Quantity (lbs): 230000
CBI Claimed:
Flammable/Toxic: Flammable

Process ID: 1000062338
Description: Alkylation Unit #1
Process Chemical ID: 1000076790
Program Level: Program Level 3 process
Chemical Name: Butane
CAS Number: 106-97-8
Quantity (lbs): 51000
CBI Claimed:
Flammable/Toxic: Flammable

Process ID: 1000062340
Description: Hydrotreating Unit #1
Process Chemical ID: 1000076800
Program Level: Program Level 3 process
Chemical Name: Isopentane [Butane, 2-methyl-]
CAS Number: 78-78-4
Quantity (lbs): 13000
CBI Claimed:

Flammable/Toxic:	Flammable
Process ID:	1000062344
Description:	Alkylation Unit #2
Process Chemical ID:	1000076831
Program Level:	Program Level 3 process
Chemical Name:	Isobutane [Propane, 2-methyl]
CAS Number:	75-28-5
Quantity (lbs):	650000
CBI Claimed:	
Flammable/Toxic:	Flammable
Process ID:	1000062344
Description:	Alkylation Unit #2
Process Chemical ID:	1000076832
Program Level:	Program Level 3 process
Chemical Name:	Butane
CAS Number:	106-97-8
Quantity (lbs):	150000
CBI Claimed:	
Flammable/Toxic:	Flammable
Process ID:	1000062338
Description:	Alkylation Unit #1
Process Chemical ID:	1000076789
Program Level:	Program Level 3 process
Chemical Name:	Isobutane [Propane, 2-methyl]
CAS Number:	75-28-5
Quantity (lbs):	330000
CBI Claimed:	
Flammable/Toxic:	Flammable
Process ID:	1000062335
Description:	Tankfarm
Process Chemical ID:	1000076860
Program Level:	Program Level 3 process
Chemical Name:	2-Butene-trans [2-Butene, (E)]
CAS Number:	624-64-6
Quantity (lbs):	170000
CBI Claimed:	
Flammable/Toxic:	Flammable
Process ID:	1000062335
Description:	Tankfarm
Process Chemical ID:	1000076859

Program Level:	Program Level 3 process
Chemical Name:	2-Butene-cis
CAS Number:	590-18-1
Quantity (lbs):	240000
CBI Claimed:	
Flammable/Toxic:	Flammable

Process ID:	1000062335
Description:	Tankfarm
Process Chemical ID:	1000076862
Program Level:	Program Level 3 process
Chemical Name:	Pentane
CAS Number:	109-66-0
Quantity (lbs):	4000000
CBI Claimed:	
Flammable/Toxic:	Flammable

Process ID:	1000062339
Description:	Railcar Loading Rack
Process Chemical ID:	1000076918
Program Level:	Program Level 3 process
Chemical Name:	Propane
CAS Number:	74-98-6
Quantity (lbs):	820000
CBI Claimed:	
Flammable/Toxic:	Flammable

Process ID:	1000062420
Description:	Crude Disitillation Unit
Process Chemical ID:	1000076950
Program Level:	Program Level 3 process
Chemical Name:	Butane
CAS Number:	106-97-8
Quantity (lbs):	8000
CBI Claimed:	
Flammable/Toxic:	Flammable

Process ID:	1000062421
Description:	Delayed Coking Unit
Process Chemical ID:	1000076951
Program Level:	Program Level 3 process
Chemical Name:	Butane
CAS Number:	106-97-8
Quantity (lbs):	4200
CBI Claimed:	
Flammable/Toxic:	Flammable

Process ID: 1000062335
Description: Tankfarm
Process Chemical ID: 1000076764
Program Level: Program Level 3 process
Chemical Name: Propylene [1-Propene]
CAS Number: 115-07-1
Quantity (lbs): 180000
CBI Claimed:
Flammable/Toxic: Flammable

Process ID: 1000062342
Description: Catalytic Reformer #1
Process Chemical ID: 1000076817
Program Level: Program Level 3 process
Chemical Name: Isopentane [Butane, 2-methyl-]
CAS Number: 78-78-4
Quantity (lbs): 17000
CBI Claimed:
Flammable/Toxic: Flammable

Process ID: 1000062346
Description: Poly
Process Chemical ID: 1000076849
Program Level: Program Level 3 process
Chemical Name: Isobutane [Propane, 2-methyl]
CAS Number: 75-28-5
Quantity (lbs): 45000
CBI Claimed:
Flammable/Toxic: Flammable

Process ID: 1000062339
Description: Railcar Loading Rack
Process Chemical ID: 1000076921
Program Level: Program Level 3 process
Chemical Name: Propylene [1-Propene]
CAS Number: 115-07-1
Quantity (lbs): 50000
CBI Claimed:
Flammable/Toxic: Flammable

Process ID: 1000062335
Description: Tankfarm
Process Chemical ID: 1000076760
Program Level: Program Level 3 process
Chemical Name: 1-Butene

CAS Number: 106-98-9
Quantity (lbs): 170000
CBI Claimed:
Flammable/Toxic: Flammable

Process ID: 1000062343
Description: Catalytic Reformer #2
Process Chemical ID: 1000076822
Program Level: Program Level 3 process
Chemical Name: Propane
CAS Number: 74-98-6
Quantity (lbs): 21000
CBI Claimed:
Flammable/Toxic: Flammable

Process ID: 1000062345
Description: FCCU / GRU
Process Chemical ID: 1000076840
Program Level: Program Level 3 process
Chemical Name: Propylene [1-Propene]
CAS Number: 115-07-1
Quantity (lbs): 19000
CBI Claimed:
Flammable/Toxic: Flammable

Process ID: 1000062348
Description: Boiler House/Cogeneration
Process Chemical ID: 1000076858
Program Level: Program Level 3 process
Chemical Name: Ammonia (anhydrous)
CAS Number: 7664-41-7
Quantity (lbs): 91000
CBI Claimed:
Flammable/Toxic: Toxic

Process ID: 1000062335
Description: Tankfarm
Process Chemical ID: 1000076863
Program Level: Program Level 3 process
Chemical Name: Ethane
CAS Number: 74-84-0
Quantity (lbs): 47000
CBI Claimed:
Flammable/Toxic: Flammable

Process NAICS

Process ID: 1000062335
Process NAICS ID: 1000063476
Program Level: Program Level 3 process
NAICS Code: 32411
NAICS Description: Petroleum Refineries

Process ID: 1000062338
Process NAICS ID: 1000063479
Program Level: Program Level 3 process
NAICS Code: 32411
NAICS Description: Petroleum Refineries

Process ID: 1000062339
Process NAICS ID: 1000063480
Program Level: Program Level 3 process
NAICS Code: 32411
NAICS Description: Petroleum Refineries

Process ID: 1000062340
Process NAICS ID: 1000063481
Program Level: Program Level 3 process
NAICS Code: 32411
NAICS Description: Petroleum Refineries

Process ID: 1000062341
Process NAICS ID: 1000063482
Program Level: Program Level 3 process
NAICS Code: 32411
NAICS Description: Petroleum Refineries

Process ID: 1000062342
Process NAICS ID: 1000063483
Program Level: Program Level 3 process
NAICS Code: 32411
NAICS Description: Petroleum Refineries

Process ID: 1000062343
Process NAICS ID: 1000063484
Program Level: Program Level 3 process
NAICS Code: 32411
NAICS Description: Petroleum Refineries

Process ID: 1000062344
Process NAICS ID: 1000063485
Program Level: Program Level 3 process
NAICS Code: 32411
NAICS Description: Petroleum Refineries

Process ID: 1000062345
Process NAICS ID: 1000063486
Program Level: Program Level 3 process
NAICS Code: 32411
NAICS Description: Petroleum Refineries

Process ID: 1000062346
Process NAICS ID: 1000063487
Program Level: Program Level 3 process
NAICS Code: 32411
NAICS Description: Petroleum Refineries

Process ID: 1000062347
Process NAICS ID: 1000063488
Program Level: Program Level 3 process
NAICS Code: 32411
NAICS Description: Petroleum Refineries

Process ID: 1000062348
Process NAICS ID: 1000063489
Program Level: Program Level 3 process
NAICS Code: 221112
NAICS Description: Fossil Fuel Electric Power Generation

Process ID: 1000062338
Process NAICS ID: 1000063479
Program Level: Program Level 3 process
NAICS Code: 32411
NAICS Description: Petroleum Refineries

Process ID: 1000062338
Process NAICS ID: 1000063479
Program Level: Program Level 3 process
NAICS Code: 32411
NAICS Description: Petroleum Refineries

Process ID: 1000062420
Process NAICS ID: 1000063573
Program Level: Program Level 3 process
NAICS Code: 32411
NAICS Description: Petroleum Refineries

Process ID: 1000062421
Process NAICS ID: 1000063574
Program Level: Program Level 3 process
NAICS Code: 32411
NAICS Description: Petroleum Refineries

Section 2. Toxics: Worst Case

Toxic Worst ID: 1000049966

Percent Weight:	100.0
Physical State:	Gas liquified by pressure
Model Used:	Dense Gas Dispersion DEGADIS developed by US Coast Guard
Release Duration (mins):	10
Wind Speed (m/sec):	1.5
Atmospheric Stability Class:	F
Topography:	Rural

Passive Mitigation Considered

Dikes:	
Enclosures:	
Berms:	
Drains:	
Sumps:	
Other Type:	Administrative control on tank capacity at 80%

Section 3. Toxics: Alternative Release

Toxic Alter ID: 1000053452

Percent Weight:	100.0
Physical State:	Gas liquified by pressure
Model Used:	Dense Gas Dispersion DEGADIS developed by US Coast Guard
Wind Speed (m/sec):	5.1
Atmospheric Stability Class:	D
Topography:	Rural

Passive Mitigation Considered

Dikes:	
Enclosures:	
Berms:	
Drains:	
Sumps:	
Other Type:	Administrative Control on tank at 80%, no passive consideration given for existing dike (conservative assumption)

Active Mitigation Considered

Sprinkler System:	
Deluge System:	Yes
Water Curtain:	
Neutralization:	
Excess Flow Valve:	
Flares:	
Scrubbers:	
Emergency Shutdown:	
Other Type:	

Section 4. Flammables: Worst Case

Flammable Worst ID: 1000035309

Model Used:

EPA's OCA Guidance Reference Tables or
Equations

Endpoint used:

1 PSI

Passive Mitigation Considered

Blast Walls:

Other Type:

Section 5. Flammables: Alternative Release

Flammable Alter ID: 1000033290

Model Used:

EPA's OCA Guidance Reference Tables or
Equations

Passive Mitigation Considered

Dikes:

Fire Walls:

Blast Walls:

Enclosures:

Other Type:

Active Mitigation Considered

Sprinkler System:

Deluge System:

Water Curtain:

Excess Flow Valve:

Other Type:

Section 6. Accident History

No records found.

Section 7. Program Level 3

Description

Tank Farm

Program Level 3 Prevention Program Chemicals

Prevention Program Chemical ID:	1000063413
Chemical Name:	Propylene [1-Propene]
Flammable/Toxic:	Flammable
CAS Number:	115-07-1
Process ID:	1000062335
Description:	Tankfarm
Prevention Program Level 3 ID:	1000051783
NAICS Code:	32411
Prevention Program Chemical ID:	1000063409
Chemical Name:	1-Butene
Flammable/Toxic:	Flammable
CAS Number:	106-98-9
Process ID:	1000062335
Description:	Tankfarm
Prevention Program Level 3 ID:	1000051783
NAICS Code:	32411
Prevention Program Chemical ID:	1000063411
Chemical Name:	Butane
Flammable/Toxic:	Flammable
CAS Number:	106-97-8
Process ID:	1000062335
Description:	Tankfarm
Prevention Program Level 3 ID:	1000051783
NAICS Code:	32411
Prevention Program Chemical ID:	1000063408
Chemical Name:	Isobutane [Propane, 2-methyl]
Flammable/Toxic:	Flammable
CAS Number:	75-28-5
Process ID:	1000062335
Description:	Tankfarm
Prevention Program Level 3 ID:	1000051783
NAICS Code:	32411

Prevention Program Chemical ID: 1000063407
Chemical Name: Propane
Flammable/Toxic: Flammable
CAS Number: 74-98-6

Process ID: 1000062335
Description: Tankfarm
Prevention Program Level 3 ID: 1000051783
NAICS Code: 32411

Prevention Program Chemical ID: 1000063412
Chemical Name: Isopentane [Butane, 2-methyl-]
Flammable/Toxic: Flammable
CAS Number: 78-78-4

Process ID: 1000062335
Description: Tankfarm
Prevention Program Level 3 ID: 1000051783
NAICS Code: 32411

Safety Information

Safety Review Date (The date on which the safety information was last reviewed or revised): 20-Apr-2015

Process Hazard Analysis (PHA)

PHA Completion Date (Date of last PHA or PHA update): 14-Sep-2011

The Technique Used

What If:
Checklist:
What If/Checklist:
HAZOP: Yes
Failure Mode and Effects Analysis:
Fault Tree Analysis:
Other Technique Used:
PHA Change Completion Date (The expected or actual date of completion of all changes resulting from last PHA or PHA update): 21-Mar-2019

Major Hazards Identified

Toxic Release: Yes
Fire: Yes
Explosion: Yes
Runaway Reaction:
Polymerization:
Overpressurization: Yes

Corrosion:	Yes
Overfilling:	Yes
Contamination:	Yes
Equipment Failure:	Yes
Loss of Cooling, Heating, Electricity, Instrument Air:	Yes
Earthquake:	
Floods (Flood Plain):	
Tornado:	
Hurricanes:	
Other Major Hazard Identified:	Low ambient temperature/Low pressure

Process Controls in Use

Vents:	Yes
Relief Valves:	Yes
Check Valves:	Yes
Scrubbers:	
Flares:	Yes
Manual Shutoffs:	Yes
Automatic Shutoffs:	Yes
Interlocks:	Yes
Alarms and Procedures:	Yes
Keyed Bypass:	Yes
Emergency Air Supply:	
Emergency Power:	Yes
Backup Pump:	Yes
Grounding Equipment:	Yes
Inhibitor Addition:	Yes
Rupture Disks:	
Excess Flow Device:	Yes
Quench System:	Yes
Purge System:	Yes
None:	
Other Process Control in Use:	

Mitigation Systems in Use

Sprinkler System:	Yes
Dikes:	Yes
Fire Walls:	
Blast Walls:	
Deluge System:	Yes
Water Curtain:	
Enclosure:	
Neutralization:	
None:	
Other Mitigation System in Use:	

Monitoring/Detection Systems in Use

Process Area Detectors:	Yes
Perimeter Monitors:	
None:	
Other Monitoring/Detection System in Use:	Personal H2S monitors worn in area.

Changes Since Last PHA Update

Reduction in Chemical Inventory:
Increase in Chemical Inventory:
Change Process Parameters: Yes
Installation of Process Controls: Yes
Installation of Process Detection Systems: Yes
Installation of Perimeter Monitoring Systems:
Installation of Mitigation Systems:
None Recommended:
None:
Other Changes Since Last PHA or PHA Update:

Review of Operating Procedures

Operating Procedures Revision Date (The date of the most recent review or revision of operating procedures): 26-May-2014

Training

Training Revision Date (The date of the most recent review or revision of training programs): 21-Oct-2014

The Type of Training Provided

Classroom: Yes
On the Job: Yes
Other Training: computer based

The Type of Competency Testing Used

Written Tests: Yes
Oral Tests: Yes
Demonstration: Yes
Observation: Yes
Other Type of Competency Testing Used:

Maintenance

Maintenance Procedures Revision Date (The date of the most recent review or revision of maintenance procedures): 16-Apr-2014

Equipment Inspection Date (The date of the most recent equipment inspection or test): 09-Mar-2015

Equipment Tested (Equipment most recently inspected or tested): Tank 19

Management of Change

Change Management Date (The date of the most recent change that triggered management of change procedures): 03-Mar-2015

Change Management Revision Date (The date of the most recent review or revision of management of change procedures): 08-Jun-2012

Pre-Startup Review

Pre-Startup Review Date (The date of the most recent pre-startup review): 10-Feb-2015

Compliance Audits

Compliance Audit Date (The date of the most recent compliance audit): 22-Jul-2013

Compliance Audit Change Completion Date (Expected or actual date of completion of all changes resulting from the compliance audit): 31-Dec-2014

Incident Investigation

Incident Investigation Date (The date of the most recent incident investigation (if any)): 28-Mar-2009

Incident Investigation Change Date (The expected or actual date of completion of all changes resulting from the investigation): 15-Oct-2010

Employee Participation Plans

Participation Plan Revision Date (The date of the most recent review or revision of employee participation plans): 15-Nov-2011

Hot Work Permit Procedures

Hot Work permit Review Date (The date of the most recent review or revision of hot work permit procedures): 15-Nov-2013

Contractor Safety Procedures

Contractor Safety Procedures Review Date (The date of the most recent review or revision of contractor safety procedures): 14-May-2014

Contractor Safety Performance Evaluation Date (The date of the most recent review or revision of contractor safety performance): 31-Mar-2015

Confidential Business Information

CBI Claimed:

Description

Alkylation Unit #1

Program Level 3 Prevention Program Chemicals

Prevention Program Chemical ID: 1000063440
Chemical Name: Isopentane [Butane, 2-methyl-]
Flammable/Toxic: Flammable
CAS Number: 78-78-4

Process ID: 1000062338
Description: Alkylation Unit #1
Prevention Program Level 3 ID: 1000051786
NAICS Code: 32411

Prevention Program Chemical ID: 1000063439
Chemical Name: Butane
Flammable/Toxic: Flammable
CAS Number: 106-97-8

Process ID: 1000062338
Description: Alkylation Unit #1
Prevention Program Level 3 ID: 1000051786
NAICS Code: 32411

Prevention Program Chemical ID: 1000063438
Chemical Name: Isobutane [Propane, 2-methyl]
Flammable/Toxic: Flammable
CAS Number: 75-28-5

Process ID: 1000062338
Description: Alkylation Unit #1
Prevention Program Level 3 ID: 1000051786
NAICS Code: 32411

Prevention Program Chemical ID: 1000063437
Chemical Name: Propane
Flammable/Toxic: Flammable
CAS Number: 74-98-6

Process ID: 1000062338
Description: Alkylation Unit #1
Prevention Program Level 3 ID: 1000051786
NAICS Code: 32411

Safety Information

Safety Review Date (The date on which the safety information was last reviewed or revised): 20-Apr-2015

Process Hazard Analysis (PHA)

PHA Completion Date (Date of last PHA or PHA update): 02-May-2013

The Technique Used

What If:
Checklist:
What If/Checklist:
HAZOP: Yes
Failure Mode and Effects Analysis:
Fault Tree Analysis:
Other Technique Used:
PHA Change Completion Date (The expected or actual date of completion of all changes resulting from last PHA or PHA update): 30-Sep-2018

Major Hazards Identified

Toxic Release: Yes
Fire: Yes
Explosion: Yes
Runaway Reaction: Yes
Polymerization: Yes
Overpressurization: Yes
Corrosion: Yes
Overfilling: Yes
Contamination: Yes
Equipment Failure: Yes
Loss of Cooling, Heating, Electricity, Instrument Air: Yes
Earthquake:
Floods (Flood Plain):
Tornado:
Hurricanes:
Other Major Hazard Identified: high winds, low ambient temperature

Process Controls in Use

Vents: Yes
Relief Valves: Yes
Check Valves: Yes
Scrubbers:
Flares: Yes
Manual Shutoffs: Yes
Automatic Shutoffs: Yes
Interlocks: Yes
Alarms and Procedures: Yes
Keyed Bypass:
Emergency Air Supply:
Emergency Power:
Backup Pump: Yes

Grounding Equipment:	Yes
Inhibitor Addition:	Yes
Rupture Disks:	
Excess Flow Device:	
Quench System:	
Purge System:	Yes
None:	
Other Process Control in Use:	

Mitigation Systems in Use

Sprinkler System:	
Dikes:	
Fire Walls:	
Blast Walls:	
Deluge System:	Yes
Water Curtain:	
Enclosure:	
Neutralization:	
None:	
Other Mitigation System in Use:	

Monitoring/Detection Systems in Use

Process Area Detectors:	
Perimeter Monitors:	
None:	
Other Monitoring/Detection System in Use:	Personal H2S monitors worn in area.

Changes Since Last PHA Update

Reduction in Chemical Inventory:	
Increase in Chemical Inventory:	
Change Process Parameters:	Yes
Installation of Process Controls:	Yes
Installation of Process Detection Systems:	
Installation of Perimeter Monitoring Systems:	
Installation of Mitigation Systems:	
None Recommended:	
None:	
Other Changes Since Last PHA or PHA Update:	Eliminate dead leg piping. Updgrade valves to alloy 20 trim.

Review of Operating Procedures

Operating Procedures Revision Date (The date of the most recent review or revision of operating procedures):	26-May-2014
--	-------------

Training

Training Revision Date (The date of the most recent review or revision of training programs):	21-Oct-2014
---	-------------

The Type of Training Provided

Classroom:	Yes
On the Job:	Yes
Other Training:	computer based

The Type of Competency Testing Used

Written Tests:	Yes
Oral Tests:	Yes
Demonstration:	Yes
Observation:	Yes
Other Type of Competency Testing Used:	computer generated

Maintenance

Maintenance Procedures Revision Date (The date of the most recent review or revision of maintenance procedures): 06-Apr-2014

Equipment Inspection Date (The date of the most recent equipment inspection or test): 10-Mar-2015

Equipment Tested (Equipment most recently inspected or tested): PRV690

Management of Change

Change Management Date (The date of the most recent change that triggered management of change procedures): 15-May-2014

Change Management Revision Date (The date of the most recent review or revision of management of change procedures): 08-Jun-2012

Pre-Startup Review

Pre-Startup Review Date (The date of the most recent pre-startup review): 15-May-2014

Compliance Audits

Compliance Audit Date (The date of the most recent compliance audit): 22-Jul-2013

Compliance Audit Change Completion Date (Expected or actual date of completion of all changes resulting from the compliance audit): 31-Dec-2014

Incident Investigation

Incident Investigation Date (The date of the most recent incident investigation (if any)): 31-Jul-2009

Incident Investigation Change Date (The expected or actual date of completion of all changes resulting from the investigation): 13-Jun-2011

Employee Participation Plans

Participation Plan Revision Date (The date of the most recent review or revision of employee participation plans): 15-Nov-2011

Hot Work Permit Procedures

Hot Work permit Review Date (The date of the most recent review or revision of hot work permit procedures): 15-Nov-2013

Contractor Safety Procedures

Contractor Safety Procedures Review Date (The date of the most recent review or revision of contractor safety procedures): 14-May-2014

Contractor Safety Performance Evaluation Date (The date of the most recent review or revision of contractor safety performance): 31-Mar-2015

Confidential Business Information

CBI Claimed:

Description

Rail car load rack facilities

Program Level 3 Prevention Program Chemicals

Prevention Program Chemical ID:	1000063442
Chemical Name:	Butane
Flammable/Toxic:	Flammable
CAS Number:	106-97-8
Process ID:	1000062339
Description:	Railcar Loading Rack
Prevention Program Level 3 ID:	1000051787
NAICS Code:	32411

Safety Information

Safety Review Date (The date on which the safety information was last reviewed or revised):	20-Apr-2015
---	-------------

Process Hazard Analysis (PHA)

PHA Completion Date (Date of last PHA or PHA update):	12-Nov-2014
---	-------------

The Technique Used

What If:	Yes
Checklist:	
What If/Checklist:	
HAZOP:	Yes
Failure Mode and Effects Analysis:	
Fault Tree Analysis:	
Other Technique Used:	
PHA Change Completion Date (The expected or actual date of completion of all changes resulting from last PHA or PHA update):	11-Feb-2020

Major Hazards Identified

Toxic Release:	Yes
Fire:	Yes
Explosion:	Yes
Runaway Reaction:	
Polymerization:	
Overpressurization:	Yes
Corrosion:	Yes
Overfilling:	Yes
Contamination:	Yes
Equipment Failure:	Yes
Loss of Cooling, Heating, Electricity, Instrument Air:	Yes
Earthquake:	

Floods (Flood Plain):
Tornado:
Hurricanes:
Other Major Hazard Identified: low ambient temperatures, low pressure

Process Controls in Use

Vents:	Yes
Relief Valves:	Yes
Check Valves:	Yes
Scrubbers:	
Flares:	Yes
Manual Shutoffs:	Yes
Automatic Shutoffs:	Yes
Interlocks:	Yes
Alarms and Procedures:	Yes
Keyed Bypass:	
Emergency Air Supply:	
Emergency Power:	
Backup Pump:	Yes
Grounding Equipment:	Yes
Inhibitor Addition:	
Rupture Disks:	Yes
Excess Flow Device:	Yes
Quench System:	
Purge System:	Yes
None:	
Other Process Control in Use:	

Mitigation Systems in Use

Sprinkler System:	
Dikes:	
Fire Walls:	
Blast Walls:	
Deluge System:	Yes
Water Curtain:	
Enclosure:	
Neutralization:	
None:	
Other Mitigation System in Use:	

Monitoring/Detection Systems in Use

Process Area Detectors:	
Perimeter Monitors:	
None:	
Other Monitoring/Detection System in Use:	Personal H2S monitors worn in area.

Changes Since Last PHA Update

Reduction in Chemical Inventory:	
Increase in Chemical Inventory:	Yes
Change Process Parameters:	
Installation of Process Controls:	Yes

Installation of Process Detection Systems:
Installation of Perimeter Monitoring Systems:
Installation of Mitigation Systems: Yes
None Recommended:
None:
Other Changes Since Last PHA or PHA Update:

Review of Operating Procedures

Operating Procedures Revision Date (The date of the most recent review or revision of operating procedures): 26-May-2014

Training

Training Revision Date (The date of the most recent review or revision of training programs): 21-Oct-2014

The Type of Training Provided

Classroom: Yes
On the Job: Yes
Other Training: computer based

The Type of Competency Testing Used

Written Tests: Yes
Oral Tests: Yes
Demonstration:
Observation: Yes
Other Type of Competency Testing Used: computer generated

Maintenance

Maintenance Procedures Revision Date (The date of the most recent review or revision of maintenance procedures): 16-Apr-2014

Equipment Inspection Date (The date of the most recent equipment inspection or test): 28-Jan-2015

Equipment Tested (Equipment most recently inspected or tested): 23-O-51

Management of Change

Change Management Date (The date of the most recent change that triggered management of change procedures): 12-Jan-2015

Change Management Revision Date (The date of the most recent review or revision of management of change procedures): 18-Jun-2012

Pre-Startup Review

Pre-Startup Review Date (The date of the most recent pre-startup review): 18-Nov-2014

Compliance Audits

Compliance Audit Date (The date of the most recent compliance audit): 22-Jul-2013

Compliance Audit Change Completion Date (Expected or actual date of completion of all changes resulting from the compliance audit): 31-Dec-2014

Incident Investigation

Incident Investigation Date (The date of the most recent incident investigation (if any)): 17-Jan-2005

Incident Investigation Change Date (The expected or actual date of completion of all changes resulting from the investigation): 31-Oct-2005

Employee Participation Plans

Participation Plan Revision Date (The date of the most recent review or revision of employee participation plans): 15-Nov-2011

Hot Work Permit Procedures

Hot Work permit Review Date (The date of the most recent review or revision of hot work permit procedures): 15-Nov-2013

Contractor Safety Procedures

Contractor Safety Procedures Review Date (The date of the most recent review or revision of contractor safety procedures): 14-May-2014

Contractor Safety Performance Evaluation Date (The date of the most recent review or revision of contractor safety performance): 31-Mar-2015

Confidential Business Information

CBI Claimed:

Description

Hydrotreating Unit #1

Program Level 3 Prevention Program Chemicals

Prevention Program Chemical ID: 1000063449
Chemical Name: Isopentane [Butane, 2-methyl-]
Flammable/Toxic: Flammable
CAS Number: 78-78-4

Process ID: 1000062340
Description: Hydrotreating Unit #1
Prevention Program Level 3 ID: 1000051788
NAICS Code: 32411

Prevention Program Chemical ID: 1000063448
Chemical Name: Butane
Flammable/Toxic: Flammable
CAS Number: 106-97-8

Process ID: 1000062340
Description: Hydrotreating Unit #1
Prevention Program Level 3 ID: 1000051788
NAICS Code: 32411

Prevention Program Chemical ID: 1000063450
Chemical Name: Pentane
Flammable/Toxic: Flammable
CAS Number: 109-66-0

Process ID: 1000062340
Description: Hydrotreating Unit #1
Prevention Program Level 3 ID: 1000051788
NAICS Code: 32411

Safety Information

Safety Review Date (The date on which the safety information was last reviewed or revised): 20-Apr-2015

Process Hazard Analysis (PHA)

PHA Completion Date (Date of last PHA or PHA update): 11-Jun-2012

The Technique Used

What If:
Checklist:
What If/Checklist:
HAZOP: Yes
Failure Mode and Effects Analysis:
Fault Tree Analysis:
Other Technique Used:
PHA Change Completion Date (The expected or actual date of completion of all changes resulting from last PHA or PHA update): 31-Dec-2017

Major Hazards Identified

Toxic Release: Yes
Fire: Yes
Explosion: Yes
Runaway Reaction:
Polymerization:
Overpressurization: Yes
Corrosion: Yes
Overfilling: Yes
Contamination: Yes
Equipment Failure: Yes
Loss of Cooling, Heating, Electricity, Instrument Air: Yes
Earthquake:
Floods (Flood Plain):
Tornado:
Hurricanes:
Other Major Hazard Identified: low ambient temperatures

Process Controls in Use

Vents: Yes
Relief Valves: Yes
Check Valves: Yes
Scrubbers:
Flares: Yes
Manual Shutoffs: Yes
Automatic Shutoffs: Yes
Interlocks: Yes
Alarms and Procedures: Yes
Keyed Bypass: Yes
Emergency Air Supply:
Emergency Power:
Backup Pump: Yes
Grounding Equipment: Yes
Inhibitor Addition: Yes
Rupture Disks:
Excess Flow Device:
Quench System:
Purge System: Yes
None:
Other Process Control in Use:

Mitigation Systems in Use

Sprinkler System:
Dikes:
Fire Walls:
Blast Walls:
Deluge System: Yes
Water Curtain:
Enclosure:
Neutralization:
None:
Other Mitigation System in Use:

Monitoring/Detection Systems in Use

Process Area Detectors:
Perimeter Monitors:
None:
Other Monitoring/Detection System in Use: Personal H2S monitors worn in area.

Changes Since Last PHA Update

Reduction in Chemical Inventory:
Increase in Chemical Inventory:
Change Process Parameters: Yes
Installation of Process Controls: Yes
Installation of Process Detection Systems:
Installation of Perimeter Monitoring Systems:
Installation of Mitigation Systems:
None Recommended:
None:
Other Changes Since Last PHA or PHA Update:

Review of Operating Procedures

Operating Procedures Revision Date (The date of the most recent review or revision of operating procedures): 26-May-2014

Training

Training Revision Date (The date of the most recent review or revision of training programs): 21-Oct-2014

The Type of Training Provided

Classroom: Yes
On the Job: Yes
Other Training: computer based

The Type of Competency Testing Used

Written Tests: Yes
Oral Tests: Yes
Demonstration: Yes
Observation: Yes

Other Type of Competency Testing Used: computer generated

Maintenance

Maintenance Procedures Revision Date (The date of the most recent review or revision of maintenance procedures): 16-Apr-2014

Equipment Inspection Date (The date of the most recent equipment inspection or test): 09-Mar-2015

Equipment Tested (Equipment most recently inspected or tested): 7C-C9

Management of Change

Change Management Date (The date of the most recent change that triggered management of change procedures): 18-Mar-2015

Change Management Revision Date (The date of the most recent review or revision of management of change procedures): 08-Jun-2012

Pre-Startup Review

Pre-Startup Review Date (The date of the most recent pre-startup review): 18-Mar-2015

Compliance Audits

Compliance Audit Date (The date of the most recent compliance audit): 22-Jul-2013

Compliance Audit Change Completion Date (Expected or actual date of completion of all changes resulting from the compliance audit): 31-Dec-2014

Incident Investigation

Incident Investigation Date (The date of the most recent incident investigation (if any)): 08-Oct-2007

Incident Investigation Change Date (The expected or actual date of completion of all changes resulting from the investigation): 01-Jul-2012

Employee Participation Plans

Participation Plan Revision Date (The date of the most recent review or revision of employee participation plans): 15-Nov-2011

Hot Work Permit Procedures

Hot Work permit Review Date (The date of the most recent review or revision of hot work permit procedures): 15-Nov-2013

Contractor Safety Procedures

Contractor Safety Procedures Review Date (The date of the most recent review or revision of contractor safety procedures): 14-May-2014

Contractor Safety Performance Evaluation Date (The date of the most recent review or revision of contractor safety performance): 31-Mar-2015

Confidential Business Information

CBI Claimed:

Description

Hydrotreating Unit #2

Program Level 3 Prevention Program Chemicals

Prevention Program Chemical ID: 1000063456
Chemical Name: Butane
Flammable/Toxic: Flammable
CAS Number: 106-97-8

Process ID: 1000062341
Description: Hydrotreating Unit #2
Prevention Program Level 3 ID: 1000051789
NAICS Code: 32411

Prevention Program Chemical ID: 1000063458
Chemical Name: Pentane
Flammable/Toxic: Flammable
CAS Number: 109-66-0

Process ID: 1000062341
Description: Hydrotreating Unit #2
Prevention Program Level 3 ID: 1000051789
NAICS Code: 32411

Safety Information

Safety Review Date (The date on which the safety information was last reviewed or revised): 20-Apr-2015

Process Hazard Analysis (PHA)

PHA Completion Date (Date of last PHA or PHA update): 26-Apr-2012

The Technique Used

What If:
Checklist:
What If/Checklist:
HAZOP: Yes
Failure Mode and Effects Analysis:
Fault Tree Analysis:
Other Technique Used:
PHA Change Completion Date (The expected or actual date of completion of all changes resulting from last PHA or PHA update): 30-Jul-2017

Major Hazards Identified

Toxic Release:	Yes
Fire:	Yes
Explosion:	Yes
Runaway Reaction:	Yes
Polymerization:	
Overpressurization:	Yes
Corrosion:	Yes
Overfilling:	Yes
Contamination:	Yes
Equipment Failure:	Yes
Loss of Cooling, Heating, Electricity, Instrument Air:	Yes
Earthquake:	
Floods (Flood Plain):	
Tornado:	
Hurricanes:	
Other Major Hazard Identified:	low ambient temperature

Process Controls in Use

Vents:	Yes
Relief Valves:	Yes
Check Valves:	Yes
Scrubbers:	
Flares:	Yes
Manual Shutoffs:	Yes
Automatic Shutoffs:	Yes
Interlocks:	Yes
Alarms and Procedures:	Yes
Keyed Bypass:	Yes
Emergency Air Supply:	
Emergency Power:	
Backup Pump:	Yes
Grounding Equipment:	Yes
Inhibitor Addition:	Yes
Rupture Disks:	Yes
Excess Flow Device:	
Quench System:	Yes
Purge System:	Yes
None:	
Other Process Control in Use:	

Mitigation Systems in Use

Sprinkler System:	
Dikes:	
Fire Walls:	
Blast Walls:	
Deluge System:	Yes
Water Curtain:	
Enclosure:	
Neutralization:	
None:	
Other Mitigation System in Use:	

Monitoring/Detection Systems in Use

Process Area Detectors:

Perimeter Monitors:

None:

Other Monitoring/Detection System in Use:

Personal H2S monitors worn in area.

Changes Since Last PHA Update

Reduction in Chemical Inventory:

Increase in Chemical Inventory:

Change Process Parameters:

Yes

Installation of Process Controls:

Yes

Installation of Process Detection Systems:

Installation of Perimeter Monitoring Systems:

Installation of Mitigation Systems:

None Recommended:

None:

Other Changes Since Last PHA or PHA Update:

Upgrade pump shaft metalurgy.

Review of Operating Procedures

Operating Procedures Revision Date (The date of the most recent review or revision of operating procedures):

26-May-2014

Training

Training Revision Date (The date of the most recent review or revision of training programs):

21-Oct-2014

The Type of Training Provided

Classroom:

Yes

On the Job:

Yes

Other Training:

computer based

The Type of Competency Testing Used

Written Tests:

Yes

Oral Tests:

Yes

Demonstration:

Yes

Observation:

Yes

Other Type of Competency Testing Used:

computer generated

Maintenance

Maintenance Procedures Revision Date (The date of the most recent review or revision of maintenance procedures):

16-Apr-2014

Equipment Inspection Date (The date of the most recent equipment inspection or test):

11-Mar-2015

Equipment Tested (Equipment most recently inspected or tested): PRV3609

Management of Change

Change Management Date (The date of the most recent change that triggered management of change procedures): 10-Mar-2015

Change Management Revision Date (The date of the most recent review or revision of management of change procedures): 18-Jun-2012

Pre-Startup Review

Pre-Startup Review Date (The date of the most recent pre-startup review): 24-Feb-2015

Compliance Audits

Compliance Audit Date (The date of the most recent compliance audit): 22-Jul-2013

Compliance Audit Change Completion Date (Expected or actual date of completion of all changes resulting from the compliance audit): 31-Dec-2014

Incident Investigation

Incident Investigation Date (The date of the most recent incident investigation (if any)): 25-Jun-2008

Incident Investigation Change Date (The expected or actual date of completion of all changes resulting from the investigation): 31-Jul-2009

Employee Participation Plans

Participation Plan Revision Date (The date of the most recent review or revision of employee participation plans): 15-Nov-2011

Hot Work Permit Procedures

Hot Work permit Review Date (The date of the most recent review or revision of hot work permit procedures): 15-Nov-2013

Contractor Safety Procedures

Contractor Safety Procedures Review Date (The date of the most recent review or revision of contractor safety procedures): 14-May-2014

Contractor Safety Performance Evaluation Date (The date of the most recent review or revision of contractor safety performance): 03-Mar-2015

Confidential Business Information

CBI Claimed:

Description

Catalytic Reforming Unit #1

Program Level 3 Prevention Program Chemicals

Prevention Program Chemical ID:	1000063466
Chemical Name:	Isopentane [Butane, 2-methyl-]
Flammable/Toxic:	Flammable
CAS Number:	78-78-4

Process ID:	1000062342
Description:	Catalytic Reformer #1
Prevention Program Level 3 ID:	1000051790
NAICS Code:	32411

Safety Information

Safety Review Date (The date on which the safety information was last reviewed or revised):	20-Apr-2015
---	-------------

Process Hazard Analysis (PHA)

PHA Completion Date (Date of last PHA or PHA update):	02-Feb-2015
---	-------------

The Technique Used

What If:	
Checklist:	
What If/Checklist:	
HAZOP:	Yes
Failure Mode and Effects Analysis:	
Fault Tree Analysis:	
Other Technique Used:	
PHA Change Completion Date (The expected or actual date of completion of all changes resulting from last PHA or PHA update):	08-May-2018

Major Hazards Identified

Toxic Release:	Yes
Fire:	Yes
Explosion:	Yes
Runaway Reaction:	Yes
Polymerization:	
Overpressurization:	Yes
Corrosion:	Yes
Overfilling:	Yes
Contamination:	Yes
Equipment Failure:	Yes
Loss of Cooling, Heating, Electricity, Instrument Air:	Yes
Earthquake:	

Floods (Flood Plain):
Tornado:
Hurricanes:
Other Major Hazard Identified: low ambient temperatures

Process Controls in Use

Vents:	Yes
Relief Valves:	Yes
Check Valves:	Yes
Scrubbers:	
Flares:	Yes
Manual Shutoffs:	Yes
Automatic Shutoffs:	Yes
Interlocks:	Yes
Alarms and Procedures:	Yes
Keyed Bypass:	Yes
Emergency Air Supply:	
Emergency Power:	
Backup Pump:	Yes
Grounding Equipment:	Yes
Inhibitor Addition:	Yes
Rupture Disks:	
Excess Flow Device:	Yes
Quench System:	
Purge System:	Yes
None:	
Other Process Control in Use:	

Mitigation Systems in Use

Sprinkler System:	
Dikes:	
Fire Walls:	
Blast Walls:	
Deluge System:	Yes
Water Curtain:	
Enclosure:	
Neutralization:	
None:	
Other Mitigation System in Use:	

Monitoring/Detection Systems in Use

Process Area Detectors:	
Perimeter Monitors:	
None:	
Other Monitoring/Detection System in Use:	Personal H2S monitors worn in area.

Changes Since Last PHA Update

Reduction in Chemical Inventory:	Yes
Increase in Chemical Inventory:	
Change Process Parameters:	
Installation of Process Controls:	

Installation of Process Detection Systems:
Installation of Perimeter Monitoring Systems:
Installation of Mitigation Systems:
None Recommended:
None:
Other Changes Since Last PHA or PHA Update:

Review of Operating Procedures

Operating Procedures Revision Date (The date of the most recent review or revision of operating procedures): 26-May-2014

Training

Training Revision Date (The date of the most recent review or revision of training programs): 21-Oct-2014

The Type of Training Provided

Classroom:	Yes
On the Job:	Yes
Other Training:	computer based

The Type of Competency Testing Used

Written Tests:	Yes
Oral Tests:	Yes
Demonstration:	Yes
Observation:	Yes
Other Type of Competency Testing Used:	computer generated

Maintenance

Maintenance Procedures Revision Date (The date of the most recent review or revision of maintenance procedures): 16-Apr-2014

Equipment Inspection Date (The date of the most recent equipment inspection or test): 05-Mar-2015

Equipment Tested (Equipment most recently inspected or tested): 6D-E23

Management of Change

Change Management Date (The date of the most recent change that triggered management of change procedures): 09-Apr-2015

Change Management Revision Date (The date of the most recent review or revision of management of change procedures): 08-Jun-2012

Pre-Startup Review

Pre-Startup Review Date (The date of the most recent pre-startup review): 27-Mar-2015

Compliance Audits

Compliance Audit Date (The date of the most recent compliance audit): 22-Jul-2013

Compliance Audit Change Completion Date (Expected or actual date of completion of all changes resulting from the compliance audit): 31-Dec-2014

Incident Investigation

Incident Investigation Date (The date of the most recent incident investigation (if any)): 01-Dec-2010

Incident Investigation Change Date (The expected or actual date of completion of all changes resulting from the investigation): 02-Sep-2012

Employee Participation Plans

Participation Plan Revision Date (The date of the most recent review or revision of employee participation plans): 15-Nov-2011

Hot Work Permit Procedures

Hot Work permit Review Date (The date of the most recent review or revision of hot work permit procedures): 15-Nov-2013

Contractor Safety Procedures

Contractor Safety Procedures Review Date (The date of the most recent review or revision of contractor safety procedures): 14-May-2014

Contractor Safety Performance Evaluation Date (The date of the most recent review or revision of contractor safety performance): 31-Mar-2015

Confidential Business Information

CBI Claimed:

Description

Catalytic Reforming Unit #2

Program Level 3 Prevention Program Chemicals

Prevention Program Chemical ID:	1000063473
Chemical Name:	Isobutane [Propane, 2-methyl]
Flammable/Toxic:	Flammable
CAS Number:	75-28-5

Process ID:	1000062343
Description:	Catalytic Reformer #2
Prevention Program Level 3 ID:	1000051791
NAICS Code:	32411

Prevention Program Chemical ID:	1000063471
Chemical Name:	Propane
Flammable/Toxic:	Flammable
CAS Number:	74-98-6

Process ID:	1000062343
Description:	Catalytic Reformer #2
Prevention Program Level 3 ID:	1000051791
NAICS Code:	32411

Prevention Program Chemical ID:	1000063475
Chemical Name:	Isopentane [Butane, 2-methyl-]
Flammable/Toxic:	Flammable
CAS Number:	78-78-4

Process ID:	1000062343
Description:	Catalytic Reformer #2
Prevention Program Level 3 ID:	1000051791
NAICS Code:	32411

Prevention Program Chemical ID:	1000063474
Chemical Name:	Butane
Flammable/Toxic:	Flammable
CAS Number:	106-97-8

Process ID:	1000062343
Description:	Catalytic Reformer #2
Prevention Program Level 3 ID:	1000051791
NAICS Code:	32411

Safety Information

Safety Review Date (The date on which the safety information was last reviewed or revised): 20-Apr-2015

Process Hazard Analysis (PHA)

PHA Completion Date (Date of last PHA or PHA update): 07-Dec-2011

The Technique Used

What If:
Checklist:
What If/Checklist:
HAZOP: Yes
Failure Mode and Effects Analysis:
Fault Tree Analysis:
Other Technique Used:
PHA Change Completion Date (The expected or actual date of completion of all changes resulting from last PHA or PHA update): 30-Jun-2018

Major Hazards Identified

Toxic Release: Yes
Fire: Yes
Explosion: Yes
Runaway Reaction: Yes
Polymerization:
Overpressurization: Yes
Corrosion: Yes
Overfilling: Yes
Contamination: Yes
Equipment Failure: Yes
Loss of Cooling, Heating, Electricity, Instrument Air: Yes
Earthquake:
Floods (Flood Plain):
Tornado:
Hurricanes:
Other Major Hazard Identified: low ambient temperatures, low pressure

Process Controls in Use

Vents: Yes
Relief Valves: Yes
Check Valves: Yes
Scrubbers:
Flares: Yes
Manual Shutoffs: Yes
Automatic Shutoffs: Yes
Interlocks: Yes
Alarms and Procedures: Yes
Keyed Bypass: Yes
Emergency Air Supply:
Emergency Power:
Backup Pump: Yes

Grounding Equipment:	Yes
Inhibitor Addition:	Yes
Rupture Disks:	
Excess Flow Device:	
Quench System:	
Purge System:	Yes
None:	
Other Process Control in Use:	

Mitigation Systems in Use

Sprinkler System:	
Dikes:	
Fire Walls:	
Blast Walls:	
Deluge System:	Yes
Water Curtain:	
Enclosure:	
Neutralization:	
None:	
Other Mitigation System in Use:	

Monitoring/Detection Systems in Use

Process Area Detectors:	Yes
Perimeter Monitors:	
None:	
Other Monitoring/Detection System in Use:	Personal H2S monitors worn in area.

Changes Since Last PHA Update

Reduction in Chemical Inventory:	
Increase in Chemical Inventory:	
Change Process Parameters:	Yes
Installation of Process Controls:	Yes
Installation of Process Detection Systems:	
Installation of Perimeter Monitoring Systems:	
Installation of Mitigation Systems:	
None Recommended:	
None:	
Other Changes Since Last PHA or PHA Update:	

Review of Operating Procedures

Operating Procedures Revision Date (The date of the most recent review or revision of operating procedures):	26-May-2014
--	-------------

Training

Training Revision Date (The date of the most recent review or revision of training programs):	21-Oct-2014
---	-------------

The Type of Training Provided

Classroom:	Yes
On the Job:	Yes
Other Training:	computer based

The Type of Competency Testing Used

Written Tests:	Yes
Oral Tests:	Yes
Demonstration:	Yes
Observation:	Yes
Other Type of Competency Testing Used:	computer generated

Maintenance

Maintenance Procedures Revision Date (The date of the most recent review or revision of maintenance procedures): 16-Apr-2014

Equipment Inspection Date (The date of the most recent equipment inspection or test): 16-Mar-2015

Equipment Tested (Equipment most recently inspected or tested): 10-E112

Management of Change

Change Management Date (The date of the most recent change that triggered management of change procedures): 06-Apr-2015

Change Management Revision Date (The date of the most recent review or revision of management of change procedures): 18-Jun-2012

Pre-Startup Review

Pre-Startup Review Date (The date of the most recent pre-startup review): 06-Apr-2015

Compliance Audits

Compliance Audit Date (The date of the most recent compliance audit): 22-Jul-2013

Compliance Audit Change Completion Date (Expected or actual date of completion of all changes resulting from the compliance audit): 31-Dec-2014

Incident Investigation

Incident Investigation Date (The date of the most recent incident investigation (if any)): 12-Jul-2007

Incident Investigation Change Date (The expected or actual date of completion of all changes resulting from the investigation): 31-Mar-2008

Employee Participation Plans

Participation Plan Revision Date (The date of the most recent review or revision of employee participation plans): 15-Nov-2011

Hot Work Permit Procedures

Hot Work permit Review Date (The date of the most recent review or revision of hot work permit procedures): 15-Nov-2013

Contractor Safety Procedures

Contractor Safety Procedures Review Date (The date of the most recent review or revision of contractor safety procedures): 14-May-2014

Contractor Safety Performance Evaluation Date (The date of the most recent review or revision of contractor safety performance): 31-Mar-2015

Confidential Business Information

CBI Claimed:

Description

Alkylation Unit #2

Program Level 3 Prevention Program Chemicals

Prevention Program Chemical ID: 1000063477
Chemical Name: Propane
Flammable/Toxic: Flammable
CAS Number: 74-98-6

Process ID: 1000062344
Description: Alkylation Unit #2
Prevention Program Level 3 ID: 1000051792
NAICS Code: 32411

Prevention Program Chemical ID: 1000063483
Chemical Name: Isopentane [Butane, 2-methyl-]
Flammable/Toxic: Flammable
CAS Number: 78-78-4

Process ID: 1000062344
Description: Alkylation Unit #2
Prevention Program Level 3 ID: 1000051792
NAICS Code: 32411

Prevention Program Chemical ID: 1000063480
Chemical Name: Isobutane [Propane, 2-methyl]
Flammable/Toxic: Flammable
CAS Number: 75-28-5

Process ID: 1000062344
Description: Alkylation Unit #2
Prevention Program Level 3 ID: 1000051792
NAICS Code: 32411

Prevention Program Chemical ID: 1000063481
Chemical Name: Butane
Flammable/Toxic: Flammable
CAS Number: 106-97-8

Process ID: 1000062344
Description: Alkylation Unit #2
Prevention Program Level 3 ID: 1000051792
NAICS Code: 32411

Safety Information

Safety Review Date (The date on which the safety information was last reviewed or revised): 20-Apr-2015

Process Hazard Analysis (PHA)

PHA Completion Date (Date of last PHA or PHA update): 16-Jul-2013

The Technique Used

What If:
Checklist:
What If/Checklist:
HAZOP: Yes
Failure Mode and Effects Analysis:
Fault Tree Analysis:
Other Technique Used:
PHA Change Completion Date (The expected or actual date of completion of all changes resulting from last PHA or PHA update): 30-Jun-2018

Major Hazards Identified

Toxic Release: Yes
Fire: Yes
Explosion: Yes
Runaway Reaction: Yes
Polymerization: Yes
Overpressurization: Yes
Corrosion: Yes
Overfilling: Yes
Contamination: Yes
Equipment Failure: Yes
Loss of Cooling, Heating, Electricity, Instrument Air: Yes
Earthquake:
Floods (Flood Plain):
Tornado:
Hurricanes:
Other Major Hazard Identified: low ambient temperatures

Process Controls in Use

Vents: Yes
Relief Valves: Yes
Check Valves: Yes
Scrubbers:
Flares: Yes
Manual Shutoffs: Yes
Automatic Shutoffs: Yes
Interlocks: Yes
Alarms and Procedures: Yes
Keyed Bypass: Yes
Emergency Air Supply:
Emergency Power:
Backup Pump: Yes

Grounding Equipment: Yes
Inhibitor Addition: Yes
Rupture Disks:
Excess Flow Device:
Quench System:
Purge System:
None:
Other Process Control in Use:

Mitigation Systems in Use

Sprinkler System:
Dikes:
Fire Walls:
Blast Walls:
Deluge System: Yes
Water Curtain:
Enclosure:
Neutralization:
None:
Other Mitigation System in Use:

Monitoring/Detection Systems in Use

Process Area Detectors:
Perimeter Monitors:
None:
Other Monitoring/Detection System in Use: Personal H2S monitors worn in area.

Changes Since Last PHA Update

Reduction in Chemical Inventory:
Increase in Chemical Inventory:
Change Process Parameters: Yes
Installation of Process Controls: Yes
Installation of Process Detection Systems:
Installation of Perimeter Monitoring Systems:
Installation of Mitigation Systems:
None Recommended:
None:
Other Changes Since Last PHA or PHA Update: Upgrade heat exchanger metalurgy. Remove deadleg.

Review of Operating Procedures

Operating Procedures Revision Date (The date of the most recent review or revision of operating procedures): 26-May-2014

Training

Training Revision Date (The date of the most recent review or revision of training programs): 21-Oct-2014

The Type of Training Provided

Classroom:	Yes
On the Job:	Yes
Other Training:	computer based

The Type of Competency Testing Used

Written Tests:	Yes
Oral Tests:	Yes
Demonstration:	Yes
Observation:	Yes
Other Type of Competency Testing Used:	computer generated

Maintenance

Maintenance Procedures Revision Date (The date of the most recent review or revision of maintenance procedures): 16-Apr-2014

Equipment Inspection Date (The date of the most recent equipment inspection or test): 28-Feb-2015

Equipment Tested (Equipment most recently inspected or tested): PRV6006

Management of Change

Change Management Date (The date of the most recent change that triggered management of change procedures): 10-Feb-2015

Change Management Revision Date (The date of the most recent review or revision of management of change procedures): 18-Jun-2012

Pre-Startup Review

Pre-Startup Review Date (The date of the most recent pre-startup review): 10-Feb-2015

Compliance Audits

Compliance Audit Date (The date of the most recent compliance audit): 22-Jul-2013

Compliance Audit Change Completion Date (Expected or actual date of completion of all changes resulting from the compliance audit): 31-Dec-2014

Incident Investigation

Incident Investigation Date (The date of the most recent incident investigation (if any)): 28-Jan-2009

Incident Investigation Change Date (The expected or actual date of completion of all changes resulting from the investigation): 12-Jan-2010

Employee Participation Plans

Participation Plan Revision Date (The date of the most recent review or revision of employee participation plans): 15-Nov-2011

Hot Work Permit Procedures

Hot Work permit Review Date (The date of the most recent review or revision of hot work permit procedures): 15-Nov-2013

Contractor Safety Procedures

Contractor Safety Procedures Review Date (The date of the most recent review or revision of contractor safety procedures): 14-May-0014

Contractor Safety Performance Evaluation Date (The date of the most recent review or revision of contractor safety performance): 31-Mar-2015

Confidential Business Information

CBI Claimed:

Description

Fluid Catalytic Cracking Unit

Program Level 3 Prevention Program Chemicals

Prevention Program Chemical ID:	1000063489
Chemical Name:	Propylene [1-Propene]
Flammable/Toxic:	Flammable
CAS Number:	115-07-1

Process ID:	1000062345
Description:	FCCU / GRU
Prevention Program Level 3 ID:	1000051793
NAICS Code:	32411

Prevention Program Chemical ID:	1000063490
Chemical Name:	Isobutane [Propane, 2-methyl]
Flammable/Toxic:	Flammable
CAS Number:	75-28-5

Process ID:	1000062345
Description:	FCCU / GRU
Prevention Program Level 3 ID:	1000051793
NAICS Code:	32411

Safety Information

Safety Review Date (The date on which the safety information was last reviewed or revised):	20-Apr-2015
---	-------------

Process Hazard Analysis (PHA)

PHA Completion Date (Date of last PHA or PHA update):	01-Nov-2012
---	-------------

The Technique Used

What If:	
Checklist:	
What If/Checklist:	
HAZOP:	Yes
Failure Mode and Effects Analysis:	
Fault Tree Analysis:	
Other Technique Used:	
PHA Change Completion Date (The expected or actual date of completion of all changes resulting from last PHA or PHA update):	06-Oct-2020

Major Hazards Identified

Toxic Release:	Yes
Fire:	Yes
Explosion:	Yes
Runaway Reaction:	Yes
Polymerization:	Yes
Overpressurization:	Yes
Corrosion:	Yes
Overfilling:	Yes
Contamination:	Yes
Equipment Failure:	Yes
Loss of Cooling, Heating, Electricity, Instrument Air:	Yes
Earthquake:	
Floods (Flood Plain):	
Tornado:	
Hurricanes:	
Other Major Hazard Identified:	high winds

Process Controls in Use

Vents:	Yes
Relief Valves:	Yes
Check Valves:	Yes
Scrubbers:	
Flares:	Yes
Manual Shutoffs:	Yes
Automatic Shutoffs:	Yes
Interlocks:	Yes
Alarms and Procedures:	Yes
Keyed Bypass:	Yes
Emergency Air Supply:	Yes
Emergency Power:	Yes
Backup Pump:	Yes
Grounding Equipment:	Yes
Inhibitor Addition:	Yes
Rupture Disks:	
Excess Flow Device:	Yes
Quench System:	Yes
Purge System:	Yes
None:	
Other Process Control in Use:	

Mitigation Systems in Use

Sprinkler System:	Yes
Dikes:	
Fire Walls:	
Blast Walls:	
Deluge System:	Yes
Water Curtain:	
Enclosure:	
Neutralization:	
None:	
Other Mitigation System in Use:	

Monitoring/Detection Systems in Use

Process Area Detectors:	Yes
Perimeter Monitors:	
None:	
Other Monitoring/Detection System in Use:	Personal H2S monitors worn in area.

Changes Since Last PHA Update

Reduction in Chemical Inventory:	
Increase in Chemical Inventory:	
Change Process Parameters:	Yes
Installation of Process Controls:	Yes
Installation of Process Detection Systems:	
Installation of Perimeter Monitoring Systems:	
Installation of Mitigation Systems:	
None Recommended:	
None:	
Other Changes Since Last PHA or PHA Update:	Remove deadleg. Upgrade heat exchanger metalurgy.

Review of Operating Procedures

Operating Procedures Revision Date (The date of the most recent review or revision of operating procedures):	26-May-2014
--	-------------

Training

Training Revision Date (The date of the most recent review or revision of training programs):	21-Oct-2014
---	-------------

The Type of Training Provided

Classroom:	Yes
On the Job:	Yes
Other Training:	computer based

The Type of Competency Testing Used

Written Tests:	Yes
Oral Tests:	Yes
Demonstration:	Yes
Observation:	Yes
Other Type of Competency Testing Used:	computer based

Maintenance

Maintenance Procedures Revision Date (The date of the most recent review or revision of maintenance procedures):	16-Apr-2014
--	-------------

Equipment Inspection Date (The date of the most recent equipment inspection or test):	11-Mar-2015
---	-------------

Equipment Tested (Equipment most recently inspected or tested): PRV2404

Management of Change

Change Management Date (The date of the most recent change that triggered management of change procedures): 31-Mar-2015

Change Management Revision Date (The date of the most recent review or revision of management of change procedures): 18-Jun-2012

Pre-Startup Review

Pre-Startup Review Date (The date of the most recent pre-startup review): 30-Mar-2015

Compliance Audits

Compliance Audit Date (The date of the most recent compliance audit): 22-Jul-2013

Compliance Audit Change Completion Date (Expected or actual date of completion of all changes resulting from the compliance audit): 31-Dec-2014

Incident Investigation

Incident Investigation Date (The date of the most recent incident investigation (if any)): 19-Jul-2009

Incident Investigation Change Date (The expected or actual date of completion of all changes resulting from the investigation): 03-Jun-2011

Employee Participation Plans

Participation Plan Revision Date (The date of the most recent review or revision of employee participation plans): 15-Nov-2011

Hot Work Permit Procedures

Hot Work permit Review Date (The date of the most recent review or revision of hot work permit procedures): 15-Nov-2013

Contractor Safety Procedures

Contractor Safety Procedures Review Date (The date of the most recent review or revision of contractor safety procedures): 14-May-2014

Contractor Safety Performance Evaluation Date 31-Mar-2015
(The date of the most recent review or revision of
contractor safety performance):

Confidential Business Information

CBI Claimed:

Description

Polymerization Unit

Program Level 3 Prevention Program Chemicals

Prevention Program Chemical ID: 1000063498
Chemical Name: Isobutane [Propane, 2-methyl]
Flammable/Toxic: Flammable
CAS Number: 75-28-5

Process ID: 1000062346
Description: Poly
Prevention Program Level 3 ID: 1000051794
NAICS Code: 32411

Prevention Program Chemical ID: 1000063497
Chemical Name: Propylene [1-Propene]
Flammable/Toxic: Flammable
CAS Number: 115-07-1

Process ID: 1000062346
Description: Poly
Prevention Program Level 3 ID: 1000051794
NAICS Code: 32411

Prevention Program Chemical ID: 1000063499
Chemical Name: Butane
Flammable/Toxic: Flammable
CAS Number: 106-97-8

Process ID: 1000062346
Description: Poly
Prevention Program Level 3 ID: 1000051794
NAICS Code: 32411

Prevention Program Chemical ID: 1000063496
Chemical Name: Propane
Flammable/Toxic: Flammable
CAS Number: 74-98-6

Process ID: 1000062346
Description: Poly
Prevention Program Level 3 ID: 1000051794
NAICS Code: 32411

Safety Information

Safety Review Date (The date on which the safety information was last reviewed or revised): 20-Apr-2015

Process Hazard Analysis (PHA)

PHA Completion Date (Date of last PHA or PHA update): 22-Aug-2013

The Technique Used

What If:
Checklist:
What If/Checklist:
HAZOP: Yes
Failure Mode and Effects Analysis:
Fault Tree Analysis:
Other Technique Used:
PHA Change Completion Date (The expected or actual date of completion of all changes resulting from last PHA or PHA update): 30-Sep-2018

Major Hazards Identified

Toxic Release: Yes
Fire: Yes
Explosion: Yes
Runaway Reaction: Yes
Polymerization: Yes
Overpressurization: Yes
Corrosion: Yes
Overfilling: Yes
Contamination: Yes
Equipment Failure: Yes
Loss of Cooling, Heating, Electricity, Instrument Air: Yes
Earthquake:
Floods (Flood Plain):
Tornado:
Hurricanes:
Other Major Hazard Identified: high winds, low ambient temperatures

Process Controls in Use

Vents: Yes
Relief Valves: Yes
Check Valves: Yes
Scrubbers:
Flares: Yes
Manual Shutoffs: Yes
Automatic Shutoffs: Yes
Interlocks: Yes
Alarms and Procedures: Yes
Keyed Bypass:
Emergency Air Supply:
Emergency Power:
Backup Pump: Yes

Grounding Equipment:	Yes
Inhibitor Addition:	
Rupture Disks:	Yes
Excess Flow Device:	Yes
Quench System:	
Purge System:	
None:	
Other Process Control in Use:	

Mitigation Systems in Use

Sprinkler System:	
Dikes:	
Fire Walls:	
Blast Walls:	
Deluge System:	Yes
Water Curtain:	
Enclosure:	
Neutralization:	
None:	
Other Mitigation System in Use:	

Monitoring/Detection Systems in Use

Process Area Detectors:	Yes
Perimeter Monitors:	
None:	
Other Monitoring/Detection System in Use:	Personal H2S monitors worn in area.

Changes Since Last PHA Update

Reduction in Chemical Inventory:	
Increase in Chemical Inventory:	
Change Process Parameters:	Yes
Installation of Process Controls:	Yes
Installation of Process Detection Systems:	
Installation of Perimeter Monitoring Systems:	
Installation of Mitigation Systems:	
None Recommended:	
None:	
Other Changes Since Last PHA or PHA Update:	Upgrade flange type. Upgrade heat exchanger metalurgy.

Review of Operating Procedures

Operating Procedures Revision Date (The date of the most recent review or revision of operating procedures):	26-May-2014
--	-------------

Training

Training Revision Date (The date of the most recent review or revision of training programs):	21-Oct-2014
---	-------------

The Type of Training Provided

Classroom:	Yes
On the Job:	Yes
Other Training:	computer based

The Type of Competency Testing Used

Written Tests:	Yes
Oral Tests:	Yes
Demonstration:	Yes
Observation:	Yes
Other Type of Competency Testing Used:	computer generated

Maintenance

Maintenance Procedures Revision Date (The date of the most recent review or revision of maintenance procedures): 16-Apr-2014

Equipment Inspection Date (The date of the most recent equipment inspection or test): 16-Mar-2015

Equipment Tested (Equipment most recently inspected or tested): 4B-C25

Management of Change

Change Management Date (The date of the most recent change that triggered management of change procedures): 01-Apr-2015

Change Management Revision Date (The date of the most recent review or revision of management of change procedures): 18-Jun-2012

Pre-Startup Review

Pre-Startup Review Date (The date of the most recent pre-startup review): 14-Mar-2015

Compliance Audits

Compliance Audit Date (The date of the most recent compliance audit): 22-Jul-2013

Compliance Audit Change Completion Date (Expected or actual date of completion of all changes resulting from the compliance audit): 31-Dec-2014

Incident Investigation

Incident Investigation Date (The date of the most recent incident investigation (if any)): 09-Jun-2009

Incident Investigation Change Date (The expected or actual date of completion of all changes resulting from the investigation): 31-Aug-2009

Employee Participation Plans

Participation Plan Revision Date (The date of the most recent review or revision of employee participation plans): 15-Nov-2011

Hot Work Permit Procedures

Hot Work permit Review Date (The date of the most recent review or revision of hot work permit procedures): 15-Nov-2013

Contractor Safety Procedures

Contractor Safety Procedures Review Date (The date of the most recent review or revision of contractor safety procedures): 14-May-2014

Contractor Safety Performance Evaluation Date (The date of the most recent review or revision of contractor safety performance): 31-Mar-2015

Confidential Business Information

CBI Claimed:

Description

Hydrotreating Unit #3

Program Level 3 Prevention Program Chemicals

Prevention Program Chemical ID:	1000063575
Chemical Name:	Isopentane [Butane, 2-methyl-]
Flammable/Toxic:	Flammable
CAS Number:	78-78-4

Process ID:	1000062347
Description:	Hydrotreating Unit #3
Prevention Program Level 3 ID:	1000051795
NAICS Code:	32411

Safety Information

Safety Review Date (The date on which the safety information was last reviewed or revised):	20-Apr-2015
---	-------------

Process Hazard Analysis (PHA)

PHA Completion Date (Date of last PHA or PHA update):	21-Feb-2013
---	-------------

The Technique Used

What If:	
Checklist:	
What If/Checklist:	
HAZOP:	Yes
Failure Mode and Effects Analysis:	
Fault Tree Analysis:	
Other Technique Used:	
PHA Change Completion Date (The expected or actual date of completion of all changes resulting from last PHA or PHA update):	31-Dec-2019

Major Hazards Identified

Toxic Release:	Yes
Fire:	Yes
Explosion:	Yes
Runaway Reaction:	
Polymerization:	
Overpressurization:	Yes
Corrosion:	Yes
Overfilling:	Yes
Contamination:	
Equipment Failure:	Yes
Loss of Cooling, Heating, Electricity, Instrument Air:	Yes
Earthquake:	

Floods (Flood Plain):
Tornado:
Hurricanes:
Other Major Hazard Identified:

Process Controls in Use

Vents:	Yes
Relief Valves:	Yes
Check Valves:	
Scrubbers:	Yes
Flares:	Yes
Manual Shutoffs:	Yes
Automatic Shutoffs:	Yes
Interlocks:	
Alarms and Procedures:	Yes
Keyed Bypass:	
Emergency Air Supply:	
Emergency Power:	
Backup Pump:	Yes
Grounding Equipment:	Yes
Inhibitor Addition:	
Rupture Disks:	
Excess Flow Device:	
Quench System:	
Purge System:	
None:	
Other Process Control in Use:	

Mitigation Systems in Use

Sprinkler System:	Yes
Dikes:	
Fire Walls:	
Blast Walls:	
Deluge System:	Yes
Water Curtain:	
Enclosure:	
Neutralization:	
None:	
Other Mitigation System in Use:	

Monitoring/Detection Systems in Use

Process Area Detectors:	
Perimeter Monitors:	
None:	
Other Monitoring/Detection System in Use:	Personal H2S monitors worn in area.

Changes Since Last PHA Update

Reduction in Chemical Inventory:	
Increase in Chemical Inventory:	
Change Process Parameters:	Yes
Installation of Process Controls:	Yes

Installation of Process Detection Systems:
Installation of Perimeter Monitoring Systems:
Installation of Mitigation Systems:
None Recommended:
None:
Other Changes Since Last PHA or PHA Update: Upgrade heat exchanger metalurgy.

Review of Operating Procedures

Operating Procedures Revision Date (The date of the most recent review or revision of operating procedures): 26-May-2014

Training

Training Revision Date (The date of the most recent review or revision of training programs): 21-Oct-2014

The Type of Training Provided

Classroom: Yes
On the Job: Yes
Other Training: computer based

The Type of Competency Testing Used

Written Tests: Yes
Oral Tests: Yes
Demonstration: Yes
Observation:
Other Type of Competency Testing Used:

Maintenance

Maintenance Procedures Revision Date (The date of the most recent review or revision of maintenance procedures): 16-Apr-2014

Equipment Inspection Date (The date of the most recent equipment inspection or test): 11-Mar-2015

Equipment Tested (Equipment most recently inspected or tested): PRV4941

Management of Change

Change Management Date (The date of the most recent change that triggered management of change procedures): 10-Apr-2015

Change Management Revision Date (The date of the most recent review or revision of management of change procedures): 18-Jun-2012

Pre-Startup Review

Pre-Startup Review Date (The date of the most recent pre-startup review): 02-Apr-2015

Compliance Audits

Compliance Audit Date (The date of the most recent compliance audit): 22-Jul-2013

Compliance Audit Change Completion Date (Expected or actual date of completion of all changes resulting from the compliance audit): 31-Dec-2014

Incident Investigation

Incident Investigation Date (The date of the most recent incident investigation (if any)): 16-Jun-2008

Incident Investigation Change Date (The expected or actual date of completion of all changes resulting from the investigation): 01-Dec-2009

Employee Participation Plans

Participation Plan Revision Date (The date of the most recent review or revision of employee participation plans): 15-Nov-2011

Hot Work Permit Procedures

Hot Work permit Review Date (The date of the most recent review or revision of hot work permit procedures): 15-Nov-2013

Contractor Safety Procedures

Contractor Safety Procedures Review Date (The date of the most recent review or revision of contractor safety procedures): 14-May-2014

Contractor Safety Performance Evaluation Date (The date of the most recent review or revision of contractor safety performance): 31-Mar-2015

Confidential Business Information

CBI Claimed:

Description

Boiler House/ Cogeneration

Program Level 3 Prevention Program Chemicals

Prevention Program Chemical ID:	1000063507
Chemical Name:	Ammonia (anhydrous)
Flammable/Toxic:	Toxic
CAS Number:	7664-41-7
Process ID:	1000062348
Description:	Boiler House/Cogeneration
Prevention Program Level 3 ID:	1000051796
NAICS Code:	221112

Safety Information

Safety Review Date (The date on which the safety information was last reviewed or revised):	20-Apr-2015
---	-------------

Process Hazard Analysis (PHA)

PHA Completion Date (Date of last PHA or PHA update):	10-Jan-2012
---	-------------

The Technique Used

What If:	
Checklist:	
What If/Checklist:	
HAZOP:	Yes
Failure Mode and Effects Analysis:	
Fault Tree Analysis:	
Other Technique Used:	
PHA Change Completion Date (The expected or actual date of completion of all changes resulting from last PHA or PHA update):	

Major Hazards Identified

Toxic Release:	Yes
Fire:	Yes
Explosion:	Yes
Runaway Reaction:	
Polymerization:	
Overpressurization:	Yes
Corrosion:	Yes
Overfilling:	Yes
Contamination:	
Equipment Failure:	
Loss of Cooling, Heating, Electricity, Instrument Air:	Yes
Earthquake:	

Floods (Flood Plain):
Tornado:
Hurricanes:
Other Major Hazard Identified: high winds

Process Controls in Use

Vents: Yes
Relief Valves: Yes
Check Valves: Yes
Scrubbers:
Flares: Yes
Manual Shutoffs: Yes
Automatic Shutoffs: Yes
Interlocks: Yes
Alarms and Procedures: Yes
Keyed Bypass: Yes
Emergency Air Supply:
Emergency Power: Yes
Backup Pump: Yes
Grounding Equipment: Yes
Inhibitor Addition:
Rupture Disks:
Excess Flow Device:
Quench System:
Purge System: Yes
None:
Other Process Control in Use:

Mitigation Systems in Use

Sprinkler System: Yes
Dikes: Yes
Fire Walls:
Blast Walls:
Deluge System: Yes
Water Curtain:
Enclosure:
Neutralization:
None:
Other Mitigation System in Use:

Monitoring/Detection Systems in Use

Process Area Detectors: Yes
Perimeter Monitors:
None:
Other Monitoring/Detection System in Use: Personal H2S monitors worn in area.

Changes Since Last PHA Update

Reduction in Chemical Inventory:
Increase in Chemical Inventory:
Change Process Parameters: Yes
Installation of Process Controls:

Installation of Process Detection Systems:
Installation of Perimeter Monitoring Systems:
Installation of Mitigation Systems:
None Recommended:
None:
Other Changes Since Last PHA or PHA Update:

Review of Operating Procedures

Operating Procedures Revision Date (The date of the most recent review or revision of operating procedures): 26-May-2014

Training

Training Revision Date (The date of the most recent review or revision of training programs): 21-Oct-2014

The Type of Training Provided

Classroom:	Yes
On the Job:	Yes
Other Training:	Computer Based

The Type of Competency Testing Used

Written Tests:	
Oral Tests:	
Demonstration:	Yes
Observation:	
Other Type of Competency Testing Used:	electronic evaluation

Maintenance

Maintenance Procedures Revision Date (The date of the most recent review or revision of maintenance procedures): 16-Apr-2014

Equipment Inspection Date (The date of the most recent equipment inspection or test): 13-Mar-2015

Equipment Tested (Equipment most recently inspected or tested): PRV3874

Management of Change

Change Management Date (The date of the most recent change that triggered management of change procedures): 07-Apr-2015

Change Management Revision Date (The date of the most recent review or revision of management of change procedures): 18-Jun-2012

Pre-Startup Review

Pre-Startup Review Date (The date of the most recent pre-startup review): 07-Apr-2015

Compliance Audits

Compliance Audit Date (The date of the most recent compliance audit): 22-Jul-2013

Compliance Audit Change Completion Date (Expected or actual date of completion of all changes resulting from the compliance audit): 31-Dec-2014

Incident Investigation

Incident Investigation Date (The date of the most recent incident investigation (if any)): 15-Apr-2009

Incident Investigation Change Date (The expected or actual date of completion of all changes resulting from the investigation): 30-Jun-2010

Employee Participation Plans

Participation Plan Revision Date (The date of the most recent review or revision of employee participation plans): 15-Nov-2011

Hot Work Permit Procedures

Hot Work permit Review Date (The date of the most recent review or revision of hot work permit procedures): 15-Nov-2013

Contractor Safety Procedures

Contractor Safety Procedures Review Date (The date of the most recent review or revision of contractor safety procedures): 14-May-2014

Contractor Safety Performance Evaluation Date (The date of the most recent review or revision of contractor safety performance): 31-Mar-0015

Confidential Business Information

CBI Claimed:

Description

Crude Distillation Unit

Program Level 3 Prevention Program Chemicals

Prevention Program Chemical ID:	1000063576
Chemical Name:	Butane
Flammable/Toxic:	Flammable
CAS Number:	106-97-8
Process ID:	1000062338
Description:	Alkylation Unit #1
Prevention Program Level 3 ID:	1000051862
NAICS Code:	32411

Safety Information

Safety Review Date (The date on which the safety information was last reviewed or revised):	20-Apr-2015
---	-------------

Process Hazard Analysis (PHA)

PHA Completion Date (Date of last PHA or PHA update):	20-Jul-2010
---	-------------

The Technique Used

What If:	
Checklist:	
What If/Checklist:	Yes
HAZOP:	
Failure Mode and Effects Analysis:	
Fault Tree Analysis:	
Other Technique Used:	
PHA Change Completion Date (The expected or actual date of completion of all changes resulting from last PHA or PHA update):	15-Nov-2017

Major Hazards Identified

Toxic Release:	Yes
Fire:	Yes
Explosion:	Yes
Runaway Reaction:	
Polymerization:	
Overpressurization:	Yes
Corrosion:	Yes
Overfilling:	
Contamination:	Yes
Equipment Failure:	Yes
Loss of Cooling, Heating, Electricity, Instrument Air:	Yes
Earthquake:	

Floods (Flood Plain):

Tornado:

Hurricanes:

Other Major Hazard Identified:

Human Factors

Process Controls in Use

Vents:	Yes
Relief Valves:	Yes
Check Valves:	Yes
Scrubbers:	Yes
Flares:	Yes
Manual Shutoffs:	Yes
Automatic Shutoffs:	Yes
Interlocks:	Yes
Alarms and Procedures:	Yes
Keyed Bypass:	
Emergency Air Supply:	
Emergency Power:	Yes
Backup Pump:	Yes
Grounding Equipment:	Yes
Inhibitor Addition:	Yes
Rupture Disks:	
Excess Flow Device:	
Quench System:	
Purge System:	Yes
None:	
Other Process Control in Use:	

Mitigation Systems in Use

Sprinkler System:	Yes
Dikes:	
Fire Walls:	
Blast Walls:	
Deluge System:	Yes
Water Curtain:	
Enclosure:	Yes
Neutralization:	
None:	
Other Mitigation System in Use:	

Monitoring/Detection Systems in Use

Process Area Detectors:	Yes
Perimeter Monitors:	
None:	
Other Monitoring/Detection System in Use:	Personal H2S monitors worn in area

Changes Since Last PHA Update

Reduction in Chemical Inventory:	
Increase in Chemical Inventory:	
Change Process Parameters:	Yes
Installation of Process Controls:	Yes

Installation of Process Detection Systems:	Yes
Installation of Perimeter Monitoring Systems:	
Installation of Mitigation Systems:	
None Recommended:	
None:	
Other Changes Since Last PHA or PHA Update:	Remove deadleg

Review of Operating Procedures

Operating Procedures Revision Date (The date of the most recent review or revision of operating procedures):	26-May-2014
--	-------------

Training

Training Revision Date (The date of the most recent review or revision of training programs):	21-Oct-2014
---	-------------

The Type of Training Provided

Classroom:	Yes
On the Job:	Yes
Other Training:	computer based

The Type of Competency Testing Used

Written Tests:	Yes
Oral Tests:	Yes
Demonstration:	Yes
Observation:	Yes
Other Type of Competency Testing Used:	computer test

Maintenance

Maintenance Procedures Revision Date (The date of the most recent review or revision of maintenance procedures):	16-Apr-2014
--	-------------

Equipment Inspection Date (The date of the most recent equipment inspection or test):	13-Mar-2015
---	-------------

Equipment Tested (Equipment most recently inspected or tested):	1A-E6A
---	--------

Management of Change

Change Management Date (The date of the most recent change that triggered management of change procedures):	22-Mar-2015
---	-------------

Change Management Revision Date (The date of the most recent review or revision of management of change procedures):	18-Jun-2012
--	-------------

Pre-Startup Review

Pre-Startup Review Date (The date of the most recent pre-startup review): 22-Mar-2015

Compliance Audits

Compliance Audit Date (The date of the most recent compliance audit): 22-Jul-2013

Compliance Audit Change Completion Date (Expected or actual date of completion of all changes resulting from the compliance audit): 31-Dec-2014

Incident Investigation

Incident Investigation Date (The date of the most recent incident investigation (if any)): 26-Apr-2009

Incident Investigation Change Date (The expected or actual date of completion of all changes resulting from the investigation): 30-Jun-2010

Employee Participation Plans

Participation Plan Revision Date (The date of the most recent review or revision of employee participation plans): 15-Nov-2011

Hot Work Permit Procedures

Hot Work permit Review Date (The date of the most recent review or revision of hot work permit procedures): 15-Nov-2013

Contractor Safety Procedures

Contractor Safety Procedures Review Date (The date of the most recent review or revision of contractor safety procedures): 14-May-2014

Contractor Safety Performance Evaluation Date (The date of the most recent review or revision of contractor safety performance): 31-Mar-2015

Confidential Business Information

CBI Claimed:

Description

Delayed Coking Unit

Program Level 3 Prevention Program Chemicals

Prevention Program Chemical ID:	1000063577
Chemical Name:	Butane
Flammable/Toxic:	Flammable
CAS Number:	106-97-8
Process ID:	1000062338
Description:	Alkylation Unit #1
Prevention Program Level 3 ID:	1000051863
NAICS Code:	32411

Safety Information

Safety Review Date (The date on which the safety information was last reviewed or revised):	20-Apr-2015
---	-------------

Process Hazard Analysis (PHA)

PHA Completion Date (Date of last PHA or PHA update):	20-Mar-2011
---	-------------

The Technique Used

What If:	
Checklist:	
What If/Checklist:	Yes
HAZOP:	
Failure Mode and Effects Analysis:	
Fault Tree Analysis:	
Other Technique Used:	
PHA Change Completion Date (The expected or actual date of completion of all changes resulting from last PHA or PHA update):	31-Dec-2017

Major Hazards Identified

Toxic Release:	Yes
Fire:	Yes
Explosion:	Yes
Runaway Reaction:	
Polymerization:	
Overpressurization:	Yes
Corrosion:	Yes
Overfilling:	Yes
Contamination:	Yes
Equipment Failure:	Yes
Loss of Cooling, Heating, Electricity, Instrument Air:	Yes
Earthquake:	

Floods (Flood Plain):
Tornado:
Hurricanes:
Other Major Hazard Identified: High winds

Process Controls in Use

Vents: Yes
Relief Valves: Yes
Check Valves: Yes
Scrubbers:
Flares: Yes
Manual Shutoffs: Yes
Automatic Shutoffs: Yes
Interlocks: Yes
Alarms and Procedures: Yes
Keyed Bypass: Yes
Emergency Air Supply:
Emergency Power: Yes
Backup Pump: Yes
Grounding Equipment: Yes
Inhibitor Addition:
Rupture Disks:
Excess Flow Device:
Quench System:
Purge System: Yes
None:
Other Process Control in Use:

Mitigation Systems in Use

Sprinkler System: Yes
Dikes: Yes
Fire Walls:
Blast Walls:
Deluge System: Yes
Water Curtain:
Enclosure:
Neutralization:
None:
Other Mitigation System in Use:

Monitoring/Detection Systems in Use

Process Area Detectors: Yes
Perimeter Monitors:
None:
Other Monitoring/Detection System in Use: Personal H2S monitors worn in area

Changes Since Last PHA Update

Reduction in Chemical Inventory:
Increase in Chemical Inventory:
Change Process Parameters: Yes
Installation of Process Controls: Yes

Installation of Process Detection Systems:
Installation of Perimeter Monitoring Systems:
Installation of Mitigation Systems:
None Recommended:
None:
Other Changes Since Last PHA or PHA Update: Remove deadleg

Review of Operating Procedures

Operating Procedures Revision Date (The date of the most recent review or revision of operating procedures): 26-May-2014

Training

Training Revision Date (The date of the most recent review or revision of training programs): 21-Oct-2014

The Type of Training Provided

Classroom:
On the Job: Yes
Other Training: computer based

The Type of Competency Testing Used

Written Tests: Yes
Oral Tests: Yes
Demonstration: Yes
Observation: Yes
Other Type of Competency Testing Used: computer test

Maintenance

Maintenance Procedures Revision Date (The date of the most recent review or revision of maintenance procedures): 16-Apr-2014

Equipment Inspection Date (The date of the most recent equipment inspection or test): 10-Mar-2015

Equipment Tested (Equipment most recently inspected or tested): PRV1245

Management of Change

Change Management Date (The date of the most recent change that triggered management of change procedures): 19-Mar-2015

Change Management Revision Date (The date of the most recent review or revision of management of change procedures): 18-Jun-2012

Pre-Startup Review

Pre-Startup Review Date (The date of the most recent pre-startup review): 03-Mar-2015

Compliance Audits

Compliance Audit Date (The date of the most recent compliance audit): 22-Jul-2013

Compliance Audit Change Completion Date (Expected or actual date of completion of all changes resulting from the compliance audit): 31-Dec-2014

Incident Investigation

Incident Investigation Date (The date of the most recent incident investigation (if any)): 18-Jun-2008

Incident Investigation Change Date (The expected or actual date of completion of all changes resulting from the investigation): 30-Jan-2009

Employee Participation Plans

Participation Plan Revision Date (The date of the most recent review or revision of employee participation plans): 15-Nov-2011

Hot Work Permit Procedures

Hot Work permit Review Date (The date of the most recent review or revision of hot work permit procedures): 15-Nov-2013

Contractor Safety Procedures

Contractor Safety Procedures Review Date (The date of the most recent review or revision of contractor safety procedures): 14-May-2014

Contractor Safety Performance Evaluation Date (The date of the most recent review or revision of contractor safety performance): 31-Mar-2015

Confidential Business Information

CBI Claimed:

Section 8. Program Level 2

No records found.

Section 9. Emergency Response

Written Emergency Response (ER) Plan

Community Plan (Is facility included in written community emergency response plan?): Yes

Facility Plan (Does facility have its own written emergency response plan?): Yes

Response Actions (Does ER plan include specific actions to be taken in response to accidental releases of regulated substance(s)?): Yes

Public Information (Does ER plan include procedures for informing the public and local agencies responding to accidental release?): Yes

Healthcare (Does facility's ER plan include information on emergency health care?): Yes

Emergency Response Review

Review Date (Date of most recent review or update of facility's ER plan): 12-Dec-2014

Emergency Response Training

Training Date (Date of most recent review or update of facility's employees): 20-Apr-2015

Local Agency

Agency Name (Name of local agency with which the facility ER plan or response activities are coordinated): Skagit County Department of Emergency Management

Agency Phone Number (Phone number of local agency with which the facility ER plan or response activities are coordinated): (360) 428-3250

Subject to

OSHA Regulations at 29 CFR 1910.38: Yes

OSHA Regulations at 29 CFR 1910.120: Yes

Clean Water Regulations at 40 CFR 112: Yes

RCRA Regulations at CFR 264, 265, and 279.52: Yes

OPA 90 Regulations at 40 CFR 112, 33 CFR 154, 49 CFR 194, or 30 CFR 254: Yes

State EPCRA Rules or Laws:

Other (Specify):

Executive Summary

Shell Puget Sound Refinery has a long-standing commitment to worker and public safety. This commitment is demonstrated by the resources invested in accident prevention, such as training personnel and considering safety in the design, installation, operation, and maintenance of our processes. Our policy is to implement reasonable controls to prevent foreseeable releases of regulated substances. However, if a release does occur, our trained personnel will respond to control and contain the release.

DESCRIPTION OF THE STATIONARY SOURCE AND REGULATED SUBSTANCES

Shell Puget Sound Refinery, located in Anacortes, Washington, operates a variety of processes to produce petroleum products (e.g., propane, butane, gasoline, jet fuel, diesel) from raw crude oil. The refinery has several regulated flammables, such as propane, butane, etc. In addition, the refinery uses and/or processes ammonia and hydrogen sulfide, which are also regulated substances.

FIVE-YEAR ACCIDENT HISTORY

Shell Puget Sound Refinery has not had an RMP-related accident over the past 5 years. However, Shell has an incident investigation program to determine the causes of accidents to determine ways to help prevent similar accidents from occurring.

GENERAL ACCIDENTAL RELEASE PREVENTION PROGRAM STEPS

The following is a summary of the general accident prevention program in place at Shell Puget Sound Refinery. Because processes at the refinery that are regulated by the EPA RMP regulation are also subject to the OSHA PSM standard, this summary addresses each of the OSHA PSM elements and describes the management system in place to implement the accident prevention program.

Employee Participation

Shell Puget Sound Refinery encourages employees to participate in all facets of process safety management and accident prevention. Examples of employee participation range from updating and compiling technical documents and chemical information to participating as a member of a process hazard analysis (PHA) team. Employees have access to all information created as part of the refinery accident prevention program. Specific ways that employees can be involved in the accident prevention program are documented in an employee participation plan that is maintained at the refinery and addresses each PSM program element. In addition, the refinery has a number of initiatives under way that address process safety and employee safety issues. Through the BEST (Behavioral Education for a Safer Today) Program, employees have designed and implemented a behavior based safety program which encourages modifications to behavior to work safer. This program utilizes peer observations of work practices and participation on safety teams. The program has the stated goal that "We all return home healthy and safe." The teams typically have members from various areas of the plant, including operations, maintenance, engineering, and plant management.

Process Safety Information

Shell Puget Sound Refinery keeps a variety of technical documents that are used to help maintain safe operation of the processes. These documents address chemical properties and associated hazards, chemical inventories, and equipment design basis/configuration information. Specific departments within the refinery are assigned responsibility for maintaining up-to-date process safety information. Chemical-specific information, including exposure hazards and emergency response / exposure treatment considerations, is provided in material safety data sheets (MSDSs). This information is supplemented by documents that specifically address known corrosion concerns. The refinery process uses controls and monitoring instruments, trained personnel, and protective instrument systems (e.g., automated shutdown systems).

The refinery also maintains numerous technical documents that provide information about the design and construction of process equipment. This information includes materials of construction, design pressure and temperature ratings, electrical rating of equipment, etc. This information, in combination with written procedures and trained personnel, provides a basis for establishing inspection and maintenance activities, as well as for evaluating proposed process and facility changes to ensure that safety features in the process are not compromised.

Process Hazard Analysis

Shell Puget Sound Refinery has a comprehensive program to help identify and control recognized hazards associated with the various processes. Within this program, each process is systematically examined to recognize hazards and to verify that adequate controls are in place to manage these hazards.

Shell Puget Sound Refinery primarily uses the hazard and operability (HAZOP) analysis technique to perform these evaluations. HAZOP analysis is recognized as a systematic and thorough hazard evaluation technique. The analyses are conducted using a team of people who have operating and engineering expertise. This team identifies and evaluates hazards of the process as well as accident prevention and mitigation measures, and makes suggestions for additional prevention and/or mitigation measures when the team believes such measures are necessary.

The PHA team findings are forwarded to a variety of departments for consideration and resolution. Implementation of mitigation options in response to PHA findings is based on a relative risk ranking assigned by the PHA team. All approved mitigation options being implemented in response to PHA team findings are tracked until they are complete. The final resolution of each finding is documented and that documentation is retained. It is Shell Puget Sound Refinery's policy to resolve all open findings in a timely manner. The time necessary to resolve a finding varies, depending on the nature of the finding and circumstances. For example, as a general rule, high risk findings are resolved within one year or less, unless the resolution of the finding requires a unit or plant shutdown to complete, or other conditions limit the ability of the plant to resolve the open finding. Medium risk findings are completed at the next convenient opportunity and low risk items are evaluated and proceed at the discretion of refinery management.

Shell Puget Sound Refinery periodically updates and revalidates the hazard analysis results. These periodic reviews are conducted at least every 5 years and will be conducted at this frequency until the process is no longer operating. An electronic tracking system is used to manage and document the results and findings from these updates. The team findings are forwarded to various departments for consideration and resolution.

Operating Procedures

Shell Puget Sound Refinery maintains written procedures that address various modes of process operations, such as (1) unit startup, (2) normal operations, (3) temporary operations, (4) emergency shutdown, (5) normal shutdown, and (6) initial startup of a new process. These procedures can be used as a reference by experienced operators and provide a basis for consistent training of new operators. These procedures are periodically reviewed and annually certified as current and accurate. The procedures are maintained current and accurate by revising them as necessary to reflect changes made through the management of change process.

Training

To complement the written procedures for process operations, Shell Puget Sound Refinery has implemented a comprehensive training program for all employees involved in operating a process. There is a training program that is designed to provide new operators with basic training in refinery operations if they are not already familiar with such operations. After attending the training program, new operators are paired with a senior operator to learn process-specific duties and tasks. After operators demonstrate (e.g., through tests, skills demonstration) having adequate knowledge to perform the duties and tasks in a safe manner on their own, they can work independently. In addition, operators periodically receive refresher training on the operating procedures to help maintain their skills and knowledge. This refresher training is conducted at least every three years.

Contractors

Shell Puget Sound Refinery uses contractors to supplement its workforce during periods of increased maintenance or construction activities. Because some contractors work on or near process equipment, the refinery has procedures in place so that contractors (1) perform their work in a safe manner, (2) have the appropriate knowledge and skills, (3) are aware of the hazards in their workplace, (4) understand what they should do in the event of an emergency, (5) understand and follow site safety rules, and (6) inform refinery personnel of any hazards that they find during their work. This is accomplished by providing contractors with (1) a process overview, (2) information about safety and health hazards, (3) emergency response plan requirements, and (4) safe work practices prior to their beginning work. In addition, Shell Puget Sound Refinery evaluates contractor safety programs and

performance during the selection of a contractor. Refinery personnel periodically monitor various contractor safety performance to confirm that such contractors are fulfilling their safety obligations.

Pre-startup Safety Reviews (PSSRs)

Shell Puget Sound Refinery conducts a PSSR for any new facility or facility modification that requires a change in the process safety information. The purpose of the PSSR is to ensure that safety features, procedures, personnel, and the equipment are appropriately prepared for startup prior to placing the equipment into service. This review provides one additional check to make sure construction is in accordance with the design specifications and that all supporting systems are operationally ready. The PSSR review team uses checklists to verify all aspects of readiness. A PSSR involves field verification of the construction and serves a quality assurance function by requiring verification that accident prevention program requirements are properly implemented.

Mechanical Integrity

Shell Puget Sound Refinery has well-established practices and procedures to maintain pressure vessels, piping systems, relief and vent systems, controls, pumps and compressors, and emergency shutdown systems in a safe operating condition. The basic aspects of this program include: (1) conducting training, (2) developing written procedures, (3) performing inspections and tests, (4) addressing findings identified, if any, during inspections and tests, and (5) applying quality assurance measures. In combination, these activities form a system that maintains the mechanical integrity of the process equipment.

Maintenance personnel receive training on (1) an overview of the process, (2) safety and health hazards, (3) applicable maintenance procedures, (4) emergency response plans, and (5) applicable safe work practices to help ensure that they can perform their job in a safe manner. Written procedures help ensure that work is performed in a consistent manner and provide a basis for training. Inspections and tests are performed to help ensure that equipment functions as intended, and to verify that equipment is within acceptable limits (e.g., adequate wall thickness for pressure vessels). If a deficiency is identified, employees will correct the deficiency before placing the equipment back into service (if possible), or an MOC team will review the use of the equipment and determine what actions are necessary to verify the safe operation of the equipment.

Another integral part of the mechanical integrity program is quality assurance. Shell Puget Sound Refinery incorporates quality assurance measures into equipment purchases and repairs. This helps ensure that new equipment is suitable for its intended use and that proper materials and spare parts are used when repairs are made.

Safe Work Practices

Shell Puget Sound Refinery has long-standing safe work practices in place to help maintain worker and process safety. Examples of these include (1) control of the entry/presence/exit of support personnel, (2) a lockout/tagout procedure to ensure isolation of energy sources for equipment undergoing maintenance, (3) a procedure for safe removal of hazardous materials before process piping or equipment is opened, (4) a permit and procedure to control spark-producing activities (i.e., hot work), and (5) a permit and procedure to ensure that adequate precautions are in place before entry into a confined space. These procedures (and others), along with training of affected personnel, form a system to help ensure that operations and maintenance activities are performed safely.

Management of Change

Shell Puget Sound Refinery has a comprehensive system to manage changes to processes. This system requires that changes to items such as process equipment, chemicals, technology (including process operating conditions), procedures, and other facility changes be reviewed pursuant to the MOC process before being implemented. Changes are reviewed to (1) ensure that adequate controls are in place to manage any new hazards and (2) verify that existing controls have not been compromised by the change. Affected chemical hazard information, process operating limits, and equipment information, as well as procedures, are updated to incorporate these changes. In addition, affected personnel are provided any necessary training on the change.

Incident Investigation

Shell Puget Sound Refinery promptly investigates incidents that resulted in, or reasonably could have resulted in, a fire/explosion, toxic gas release, major property damage, environmental loss, or personal injury. The goal of each investigation is to determine the facts and to develop action items that may help prevent a recurrence of the incident. The investigation team documents its findings, develops recommendations to prevent a recurrence, and forwards these results to refinery management for review. Actions taken in response to the investigation team's findings and recommendations are tracked until they are complete. The final resolution of each finding or recommendation is documented, and the investigation results are reviewed with all affected personnel whose job tasks are relevant to the incident findings including contract employees where applicable. Incident investigation reports are retained for at least 5 years so that the reports can be reviewed during future PHAs and PHA revalidations.

Compliance Audits

To help ensure that the accident prevention program is functioning properly, Shell Puget Sound Refinery periodically conducts an audit to determine whether the procedures and practices required by the accident prevention program are being implemented. Compliance audits are conducted at least every 3 years. The audit team develops findings that are forwarded to refinery management for resolution. Corrective actions taken in response to the audit team's findings are tracked until they are complete. The final resolution of each finding is documented, and the two most recent audit reports are retained.

CHEMICAL SPECIFIC PREVENTION STEPS

The processes at Shell Puget Sound Refinery have hazards that must be managed to ensure continued safe operation. The accident prevention program summarized in this document is applied to all Program 2 and 3 EPA RMP-covered processes at Shell Puget Sound Refinery. Collectively, these prevention program activities help prevent potential accident scenarios that could be caused by (1) equipment failures and (2) human errors.

In addition to the accident prevention program activities, Shell Puget Sound Refinery has safety features on many units to help (1) contain/control a release, (2) quickly detect a release, and (3) reduce the consequences of (mitigate) a release. The following types of safety features are used in various processes:

Release Detection

1. Hydrocarbon detectors with alarms
2. Hydrogen sulfide detectors with alarms
3. Ammonia detectors with alarms
4. Sulfur dioxide detectors with alarms

Release Containment/Control

1. Process relief valves that discharge to a flare to capture and incinerate episodic releases
2. Scrubber to neutralize chemical releases
3. Valves to permit isolation of the process (manual or automated)
4. Automated shutdown systems for specific process parameters (e.g., high level, high temperature)
5. Vessel to permit partial removal of the process inventory in the event of a release
6. Curbing or diking to contain liquid releases
7. Redundant equipment and instrumentation (e.g., un-interruptible power supply for process control system, backup firewater pump)
8. Atmospheric relief devices

Release Mitigation

1. Fire suppression and extinguishing systems
2. Deluge system for specific equipment
3. Trained emergency response personnel
4. Personal protective equipment (e.g., protective clothing, self-contained breathing apparatus)
5. Oil spill response equipment (e.g. boom, absorbent pads)

EMERGENCY RESPONSE PROGRAM INFORMATION

Shell Puget Sound Refinery maintains a written emergency response program, which is designed to protect worker and public safety as well as the environment. The program consists of procedures for responding to a release of a regulated substance, including the possibility of a fire or explosion if a flammable substance is accidentally released. The procedures address different aspects of emergency response, including proper first-aid and medical treatment for exposures, refinery evacuation plans and accounting for personnel after an evacuation, notification of local emergency response agencies and the public if a release occurs, and post-incident cleanup and decontamination requirements. In addition, Shell Puget Sound Refinery has procedures that address maintenance, inspection, and testing of emergency response equipment, as well as instructions that address the use of emergency response equipment. Employees receive training in these procedures as necessary to perform their specific emergency response duties. The emergency response program is updated when necessary based on modifications made to refinery processes or other refinery facilities. Changes to the emergency response program are communicated to the personnel assigned to emergency response and training is provided if necessary.

The overall emergency response program for Shell Puget Sound Refinery is coordinated with the Skagit County Local Emergency Planning Committee (LEPC). This coordination includes periodic meetings of the committee, which includes local emergency response officials, local government officials, and industry representatives. Shell Puget Sound Refinery has around-the-clock communications capability with appropriate LEPC officials and emergency response organizations (e.g., fire department). This provides a means of notifying the public of an incident, if necessary, as well as facilitating quick response to an incident. In addition to periodic LEPC meetings, Shell Puget Sound Refinery conducts periodic emergency drills that involve the LEPC and emergency response organizations. In addition, as a participant of the local CAER group, CAER provides periodic refresher training to local emergency responders regarding the hazards of regulated substances in the refinery and neighboring industries.

PLANNED CHANGES TO IMPROVE SAFETY

Shell Puget Sound Refinery resolves findings from PHAs, some of which result in modifications to the process.

ORGANIZATIONAL CHART

A link to our organizational chart is located on the Puget Sound Refinery website on the Process Safety Department webpage.